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R. DUEHRKOOP
A RECOLLECTION OF AN OLD CANVAS

PHOTO-ERA

The American Journal of Photography

VOL. XVII DECEMBER, 1906 No. 6

The cactus towers, straight and tall,
Through fallow fields of chaparral;
And here and there, in paths apart,
A dusky peon guides his cart,
And yokes of oxen journey slow
In Mexico.

A land of lutes and witching tones,
Of silver, onyx, opal stones;
A lazy land, wherein all seems
Enchanted into endless dreams —
As in the ages long ago,
In Mexico.

GLIMPSES OF MEXICO

G. F. PAUL

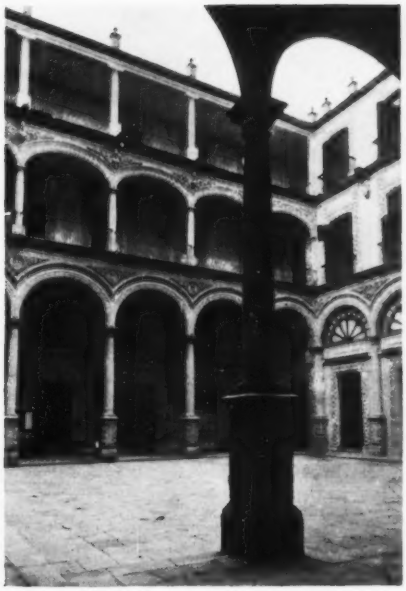
IT is not the purpose of this article to show that Mexico is a land without a drawback either to the native or the visitor. The hotels are wonderfully inadequate, transportation doubtful and sanitation negative. As for the native, he starves, and feasts and prays for rain. The dusky peon, struggling along the highway with his market load, little thinks of the historic pageants that have swept along that same highway. For him the copper *centavo* is the medium of exchange, a gay *zarape* the apparel of a king, and a Sunday service, followed with a bull fight, temporary enfranchisement from a life of slavery. The road to the market is a long and stony one that wears big holes in his sandals and makes him glad for the rest that comes when, through the darkening night, a hospitable *hacienda* looms up before him.

Viewed from a distance, the scene is vivid and striking—above, a strip of stars and a strip of black clouds. Now, of the crowd huddled under the long portals of the *hacienda*, all are not besotted fathers and blear-eyed mothers. Pairs of young lovers sit billing and cooing. A match shows for an instant three dark faces held closely together around it, all eager to get a puff at their cigarettes. Then comes a great rustling and murmuring of innumerable leaves in the towering fig-trees, and clouds of dust sweep swirling down the road. More mysterious figures with packs on their backs trudge wearily up to the *hacienda's* portal, drop on the cobblestones and fall fast asleep. Then the wind

TYPE OF MEXICAN INDIAN GIRL

lulls; the chirp of a cricket and the croak of a frog tick off the still hours; the multitudinous leaves cease to quiver and tremble; the watch-dog slowly lets his head sink down upon his outstretched paws; and the vast *hacienda*, with its pauper and its prince, is at rest — rest where a capital has stood, rest where a nation lies buried.

Yes, but such a night scene is not readily painted or photographed. True, but in the morning an even more attractive scene will be awaiting in the inner courts of this vast building. Here flowers of rarest beauty run riot in broad *patios* whose thick-leaved trees are jubilant with gay songsters. High walls hide this inner home life of the Mexicans from casual visitors, so that its real beauties and comforts are but little known. Such cities as Puebla and Guadalajara will, however, show even the most unobservant stroller glimpses of these sunlit *patios* that light up the darker entrance-ways. And not far from such entrances may be found the scrofulous beggar with his rags, the wrinkled crone selling lottery tickets, the public letter-writer with pen and ink, the haughty *ranchero* in full *charro* costume, the black-eyed hawker with his long-drawn



HOTEL ITURBIDE, MEXICO CITY

PATIO, HOTEL ITURBIDE

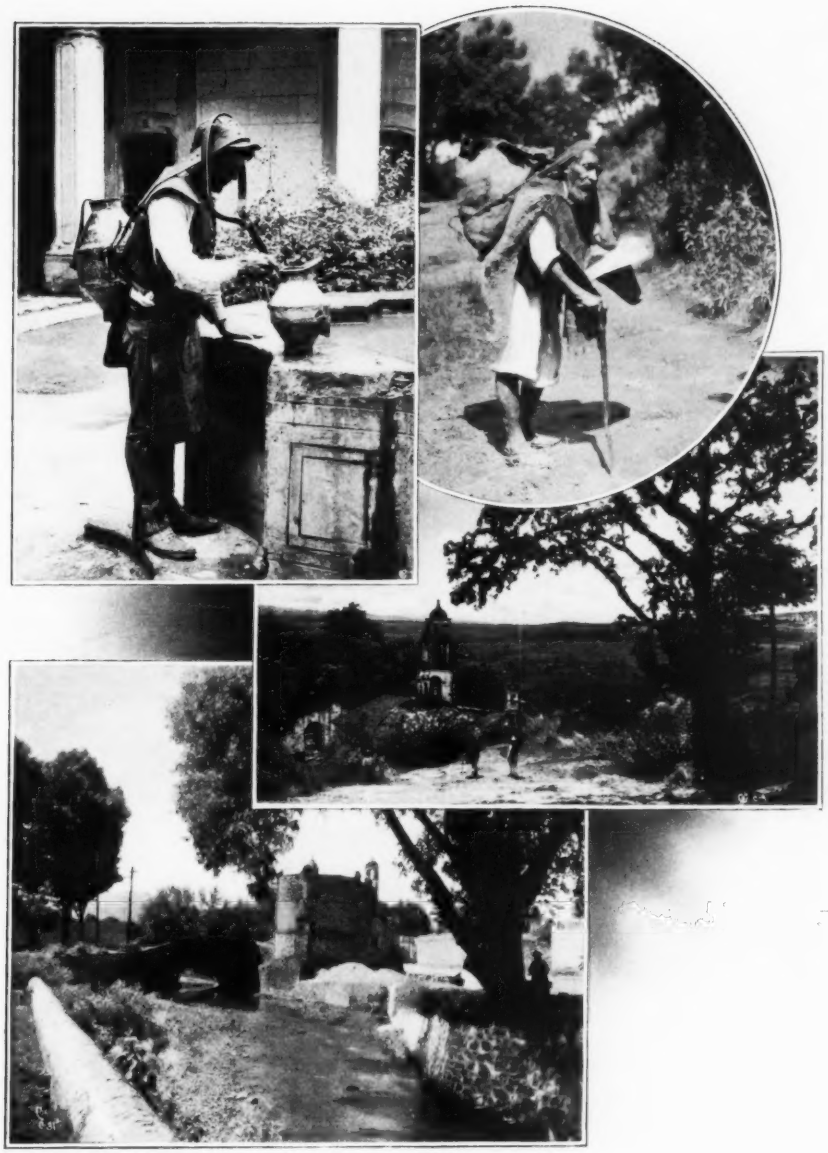
THE CATHEDRAL, MEXICO CITY

PRIMITIVE IRRIGATION, NORIA — LAKE CHAPALA

grito, the devout matron with prayer-book and dark mantilla, the languid señorita with her smiles. Every hamlet has its church; every church has its history. In many a by-corner of this New Spain may be witnessed such morning scenes as characterized the life of the peasant architect Zeferino Gutierrez. The cathedral which he built rises high above the little city of San Miguel de Alende. Innate artistic ability coupled with a passionate and consecrated zeal has raised such grand memorials throughout Mexico. We can readily picture him as he comes from the dark door of his *adobe* hut out into the brightness of a Mexican morning. Smoothing the sand with his bare foot, he traces with a pointed stick the quaint designs and conceits that have appeared in dreams to his struggling mind. Then gathering his few tools, he hastens across the cool green of the plaza to the scene of his toil, where, silently and skilfully, he works and plans until the sun, sending long, level beams across the rough brown hills, tells that another day is done.

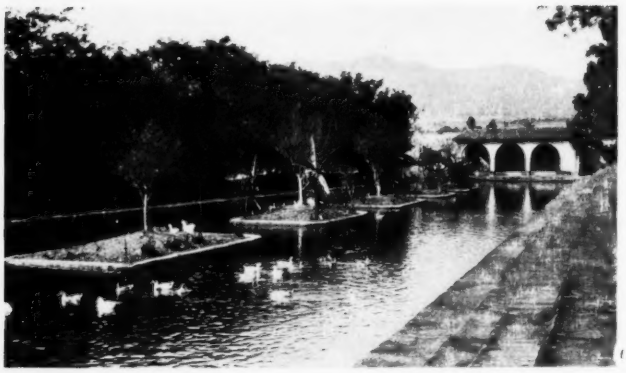
And this same sun, when viewed from some *Sacro Monte*, will be seen playing on red-tiled roofs and piercing thick olive-groves where white-walled churches are nestled. The laughing waters dancing down from the shoulders of giant hills catch the gleams and laugh with gladness. Returning home from their work, the bronzed peasants hear the evening bells through the clear air, and peace is theirs. Far, far above, dominating the green valleys and virgin forests, rising like a cloud of incense from the earth, spotless ambassador to heaven, towers the sky-pointing volcano, now silent and unchanging.

With such views, the camera expert or the man with the "white umbrella" will be exceedingly overworked, and stands in danger of dying a premature



A MEXICAN WATER-CARRIER
OLD BRIDGE NEAR SAN ANGEL

"THE SIXTH AGE"
A MEXICAN LANDSCAPE



BORDA GARDENS, CUENAVACA
IN THE INNER PATIO
WINDING STREET IN GUANAJUATO, BY C. B. WAITE

death in the heyday of his life. He will rise in the wee hours, swallow a roll and a gulp of coffee, then rush out frantically to see the sunrise, that he may later with pride point to a matchless view and tell of when

> "Morn, in the white wake of the morning star,
> Came furrowing all the orient into gold."

Then he will hurry back to the hotel, pack his kit, and row far down the lake, where perfect models can be found at every step. Picturesque huts abound in such profusion that their images will be retained on his retina just as the penitentiary prisoners see stripes continually. And then, when the shadows tremble on the lake, the overflowing wealth of color, that floods mountain and cloud at the setting of the sun, is sure to hold him spellbound. Reflections multiply, colors blend, dashing madly at each other and dying in the effort. Startling blues and impossible yellows dissolve as quickly as they were formed, and leave the artist out in the middle of the lake, weary and supperless.

The keel of his boat grates on the pebbles. Exhausted in mind and body, he slinks off to his room. But even in its sanctity there is no rest, for from without there comes the tinkling of a mandolin and the thrumming of a guitar. And stepping to the wide window, he looks out beyond the vine-clad cottages to where the moon leads a fairy dance on the laughing waves. Above, every star of Corona Australis scintillates in its priceless baldric, while on the far horizon the Southern Cross, a welcome stranger, sparkles in the clear mountain air. And later, silence sleeps on the scarred mountains, the moonlight loses itself in the depths of the narrow *barrancas*, the city lies like frozen sculpture at his feet, and over all is that calm grandeur that no voice, however gifted, can describe; no brush, however magic, can portray.

SUNSET ON LAKE CHAPALA

THE PRESENT STATUS OF COLOR PHOTOGRAPHY

E. J. WALL

I WISH that the task of trying to give a brief but coherent idea of the present status of color photography had fallen to some one's else lot, for it is not the first time I have spoken on it, and it is always as well that a subject should be viewed from different standpoints.

My task is rendered all the more difficult because the recent exhibition organized has practically taken the wind out of my sails. This was an excellent exposition of color-photography as now practised.

It is necessary to divide the subject into two main heads: first, the commercial application in the shape of photo-mechanical work, and, secondly, those processes which, requiring no mechanical power, may be used by any photographer, whether professional or amateur.

With regard to photo-mechanical processes, there is practically only one which is now of any importance, and that is the half-tone process. We are all of us more or less familiar with the present status of this craft, or, at any rate, with the results. It is true that there are still faults and the inks are not in every case ideal, and in some cases one feels that there is more fine etching than should be required. To enter at any length upon these points would entail your being wearied and my transgressing that rule which says that papers must be limited to half an hour. The subject of the inks in particular has been ably treated by Sir Wm. Abney, and the outcry is still for those with ideal absorptions. I believe I am correct in saying that if more attention was paid to the precipitation of suitable dyes of the so-called aniline class, suitable as regards fastness to light, transparency and correct color absorption, we might get further advances. A generally accepted opinion is that all the aniline dyes are fugitive, but this is not so by any means. Of course, the chief fault of the half-tone process is the irritative effect of the cross-line screens; collotype is a long way ahead in this respect, but it was proved quite ten years ago not to be a commercial three-color process, if regularity of results is to be kept in view.

I am not rash enough to say that we have reached finality in the photo-mechanical reproduction of subjects in natural colors, but if further advance is to be made, it can only be by the application of strict scientific facts and not of rule of thumb work.

Turning now to the second method, we must divide this into two classes — the direct and indirect processes. To the former belong practically only the Lippmann and the bleaching-out process.

Since Professor Lippmann, of Paris, gave, in 1891, details of his process of obtaining photographs in colors direct in the camera there has been no great advance; minor improvements there have been, but the very fact that it is necessary to use perfectly transparent and grainless emulsion must, so far as I can see, limit the speed of the plate, with the result of proportionately long exposures. The fact, too, that the resulting pictures are upon glass, and can only

be seen by reflection when viewed at a certain angle, must limit this process to the laboratory.

Last year Professor Lippmann announced that after exposure of a film of bichromated gelatine in the camera in such a manner as to obtain interferential effects he had been able to considerably intensify the colors by first treating the film with potassium iodide and then with silver nitrate. By this process silver iodide would be formed in the luminated hardened gelatine. The colors were not only more vivid when viewed in the ordinary way, but the complementary colors were vividly seen by transmitted light. Bichromated gelatine is excessively slow, and so far has not been satisfactorily orthochromatized, so that there is little hope with this. If the same principle could, however, be applied to the ordinary Lippmann emulsion plates, it might be valuable to obtain negatives in the complementary colors.

Another process which will give us colors direct is that known as the bleaching-out process. In this, as you probably all know, a mixture of fugitive dyes is coated on paper, and exposed under a colored original, and the dyes are bleached out by the colored light that they absorb.

Dr. Neuhauss, who has paid considerable attention to this subject, uses a mixture of methylene blue, auramine and erythrosine in a solution of gelatine, and increases the sensitiveness by the addition of chloral hydrate and caustic soda. Dr. Smith, of Z¨rich, who is placing a somewhat similar paper on the market, still adheres to the use of anethol, the camphor of aniseed oil, and advises the backing of the paper when the printing is half finished with a sheet of blotting-paper saturated with hydrogen peroxide and alcohol.

You will note that this is a printing-out process from a colored original, and so far exposures in the camera seem hopeless, for on Dr. Smith's authority it is possible to obtain a result in the camera with an exposure of something like six hours. Should it ever be possible to increase the sensitiveness of this product so that it became possible to obtain a colored result by any reasonable exposure in the camera, it would be very valuable, because with one such result the duplication or printing would be easy, as the colors obtained would in the same way reproduce themselves on a similar preparation, for red light bleaches out the yellow and blue, leaving red; blue bleaches out yellow and red; and yellow bleaches out the red and blue. Intermediate colors are, of course, formed by the partial bleaching of two colors.

There are many difficulties in the way to success, for the results depend upon the character of the light, sunlight not giving the same result as electric, and so on.

INDIRECT PROCESSES

Indirect methods of color photography are those in which three negatives of a subject are obtained through suitable red, green and violet filters, hence the name "three-color photography," which embraces a whole series of processes.

There are, however, two main divisions, the first comprising the additive or optical synthesis methods, in which an image is formed either by projection

with three-colored lights or the image is formed by reflection in an instrument such as the chromoscope, such as I have on the table here. In both cases the transparencies are projected with or viewed by light which is practically the same as the color-filter through which the negatives were taken.

While these methods are not such as appeal to every worker, because in the one case the triple lantern is a costly and cumbersome apparatus, and in the other because only one person can see the result at a time, in my opinion no results by any other methods can equal those obtained in this way.

Professor R. W. Wood, of Wisconsin, U. S. A., devised in 1899 a method of producing pictures in their natural colors by optical synthesis by means of three diffraction gratings ruled in different degrees of fineness on glass. Three constituent negatives are taken in the ordinary way through the usual red, green and violet filters, and from these transparencies are made by the usual photographic process. A sheet of glass is coated with bichromated gelatine, dried and exposed to the transparency taken through the red filter, the coarsest ruled diffraction grating being placed in between; the whole is then exposed to sunlight, using parallel rays as far as possible. On the same plate is placed the positive from the negative taken through the green filter, with a finer filter interposed and again exposed to sunlight, and the plate then developed with warm water. The third transparency, from the negative taken through the violet filter, is exposed, film side out, with a second bichromated gelatine plate, a still finer ruled grating being interposed, and then developed with warm water and dried. On bringing the two plates into accurate register and viewing them by transmitted light by means of an eye-piece, a picture in colors will be seen, the colors being formed by the decomposition of the light by those lines of the various diffraction gratings which were impressed on the bichromated gelatine, through the transparent parts of the positive used.

In 1904 Professor Wood improved his process and applied it to positives obtained by the Joly process — that is, positives obtained from the negatives taken through screens ruled with the three filters in closely contiguous lines. Gratings were ruled with three sets of lines in bands corresponding to the width of the red, green and blue lines of the Joly screen. The positives from the Joly negatives were flowed with a thin solution of gelatine sensitized with bichromate of potash and dried. The triple-ruled grating was then placed with its ruled surface in contact with the sensitive film, and exposed for a short time to light, and the plate then dipped in warm water and dried.

Quite recently Mr. H. E. Ives, the son of F. E. Ives, who has probably done as much as any one for photography in natural colors from a practical point of view, has so far improved this process that in my opinion it can now be considered practical. He points out that the disadvantages of using Professor Wood's latest method are that one has to use a special grating, that one is constricted to the use of Joly pictures, and, further, that the Joly rulings themselves act as gratings and give rise to false coloring due to the superposition of spectra.

I do not propose to enter into a detailed statement of all the arguments and

MYRA WIGGINS
POLISHING BRASS

facts that he deduces, nor to detail his methods of his early work, but to try and give you a succinct account of the plan he has finally adopted. Negatives are taken in the usual way through the usual color-filters; from these negatives transparencies are made by contact. A diffraction-grating replica on glass having 3,600 lines to the inch is required, and some bichromated gelatine plates and a ruled screen, with at least 200 lines to the inch, and with the opaque lines twice the width of the transparent. One of the transparencies is then projected by means of a lens on to the bichromated gelatine plate, the diffraction grating being placed in contact with the film, and then over this the ruled screen. The exposure is made, and the second transparency placed in position; the diffraction grating is now turned through an angle of 21½ degrees, the ruled screen shifted so as to cover the exposed part of the film, and uncover a fresh strip; another exposure is made. The third transparency is then placed in position, the grating again shifted 21 degrees, the ruled screen again shifted to cover the two exposed lines, and the third exposure made. The plate is then washed in water to free it from the bichromate, and the operation is finished.

The shifting of the grating is to cause the blue, green and red to fall in their proper places: when the grating ruling is parallel to the slit, the blue falls on the plate; after a shift of 21½ degrees the green is on the plate; and with the second shift of 21 degrees, the red; for as a grating is rotated as regards the slit, the spectra close in towards the slit.

The resulting plate, because you cannot call it either a negative or positive simply has impressed on it the rulings of the grating at the above-mentioned angles, and only where the light passed through the transparency. When viewed in the hand the result is a colorless sheet of glass, but when illuminated by light from a slit and viewed by a lens or eye-piece the colors are at once seen in very great brilliancy.

In order to obtain a great amount of light, Mr. Ives uses four slits, and thus obtains the superposition of two first and two second order spectra. The lines are so fine as to be absolutely invisible to the naked eye. This method is to be adapted for lantern projection, and it is hoped to find means to take the pictures directly in the camera.

From a scientific point of view this process is of very great interest, but I very much doubt, and this is entirely a personal opinion, whether it can ever become a popular commercial process. Dismissing any inherent difficulties in the working, and there may be some, I do not think that the public is going to be satisfied with pictures on glass or those that require a special apparatus to see them; such could not be given by Edwin to Angelina, or at least it would be inconvenient for the latter to carry about an instrument as big or bigger than a stereoscope, in order that she might, when she thought fit, gaze on the features of her beloved.

The process is extremely ingenious, and every credit is due to the inventor, who obviously bids fair to become the distinguished son of a more distinguished father.

SUBTRACTIVE METHODS

All other methods of obtaining photographs in natural colors are what are known as subtractive methods. That is to say, we start with a white screen or paper, and lay pigments thereon, and thus subtract something from the total white light.

Considering first those methods by means of which we can obtain transparencies that can be projected with any ordinary lantern: there are practically three principal processes, the Sanger-Shepherd, that of the Lumière N. A. Company, and Pinatype.

Taking these processes in order, I propose to briefly sketch the lines on which they proceed, and show you results by the same. I do not propose to enter into working details; those amongst you who dabble in color photography are as well acquainted with the same as I am. Others must judge for themselves of the value of each and all the processes, and they have a very ready means of obtaining instructions for the same. Personally, I do not believe that there is much difference in results by any of the positive processes provided the negatives are correct.

First of all we come to the Sanger-Shepherd process. In this a positive is made from the negative taken through the red filter on an ordinary black tone lantern plate; this is developed, fixed, thoroughly washed and the image converted by means of ferricyanide and an iron salt into a blue image. From the negative taken through the green screen an image is obtained on bichromated gelatine containing a little silver bromide, the support being celluloid, and printing being done through the celluloid; the image thus obtained is developed in warm water exactly as in the carbon process, then stained up with a red dye, and superimposed on the blue image, and the celluloid stripped. In the same way a positive is made from the negative taken through the blue screen, and stained up in yellow, and the whole cemented and bound together.

In the Lumière process as worked in England, precisely the same procedure is adopted, only the blue image is obtained by the same process as the other transparencies, and stained up with a blue aniline dye.

The Pinatype process differs from the other two, in that the dyes used will not stain hardened gelatine; that is to say, in the last two processes the original negatives are used for printing, a relief in hardened gelatine is thus obtained, and this relief is stained up; whereas in the Pinatype process transparencies have to be made in the usual way, and from these the colored transparencies are obtained. A sheet of glass coated with bichromated gelatine is exposed under the transparency from the negative taken through the green filter, and, after removal of the bichromate with a bisulphite bath, the image is stained in red. This red positive is treated to a weak bath of a copper salt and dried, then coated with bichromated gelatine, dried and exposed under the transparency from the negative taken through the red screen, and then stained up with blue. The yellow image is obtained in the same way, or it may be obtained reversed, and used as a cover-glass.

Mr. E. T. Butler has kindly lent me a few slides which are made by his process, which practically consists of dyeing the gelatine first, then bichromatizing, exposing and developing. These results are specially interesting, as they are from negatives taken, all three simultaneously, in a camera which Mr. Butler has invented.

PRINTS ON PAPER

As regards obtaining color results on paper, there have been a great many processes proposed or worked at one time or another. For instance, Drs. Miethe and Lehmann have suggested using the dusting-on process, in which successive coatings and dusting-on must be resorted to. Gum-bichromate printing has also been used by Perscheid and others, principally continental workers.

Dr. Selle uses the property of certain dyes which stain bichromated gelatine hardened by the action of light more strongly than the unhardened, and proceeds as follows: A sheet of glass is coated with a zinc-white collodion, which acts as the support for the colored picture. On this collodion film a bichromated gelatine film is coated, and when dry exposed under one of the negatives. By washing in cold water the undecomposed bichromate is removed from the gelatine film, whilst the chromic oxide formed by the action of light remains behind. The print is now laid in an aqueous solution of a mordant dye of corresponding color — that is to say, a dye which has the property of not staining pure gelatine, but of combining with the chromic oxide to form a so-called "color lake;" thus only those parts of the gelatine film which have been affected by light will be dyed. When dry, the first image is coated with collodion and a film of bichromated gelatine coated on top of it. On this light-sensitive film the second constituent negative is printed, after the outlines are made to accurately coincide with those of the first image. The second print is treated like the first, and stained in the proper color. Finally, after the second image has been coated with collodion, a third film of bichromated gelatine is coated on the top, and the third negative printed and dyed, etc. The finished print with the white collodion support may be easily stripped from the glass and mounted on a card. The colors are very permanent, because they are chromium lakes; yet no dyes appear to exist which possess all the properties which Selle's process requires. This is the principal reason why this interesting and really original process has not been introduced in practice.

Schmidt, of Berlin, also uses a similar process.

Reichel, of Munich, makes three-color photograms by printing the three constituent negatives on collodio-chloride paper, tones them in special baths, blue, red and yellow, and then mounts them one on top of the other. For the red image a sulphocyanide gold bath with sodium iodide and potash is used; the yellow print is made by toning with lead, and the blue with iron salts.

Another process for the preparation of prints has been patented by Sanger-Shepherd and Bartlett. Three images are obtained on celluloid films as usual; these are stained with suitable dyes, and the damp colored film is brought into contact with paper coated with soft gelatine. The dye is transferred fairly

R. DUEHRKOOP

LOVE AND INNOCENCE

quickly into the soft gelatine, and when the dyed film is lifted up the colored image is seen on the paper. The same process is gone through with the two other constituent images, which must, of course, be laid on the paper so that the outlines coincide. The dye is sucked out of the image by the gelatine, and the celluloid images, which thus become colorless, can again be dyed, and can be used for making prints. Like the dye solutions, they are quite permanent. The process of printing may be examined from time to time by lifting up one corner of the paper.

Another process introduced by the Lumière N. A. Company is briefly as follows: The three constituent negatives are obtained in the usual way, and that taken through the red filter is varnished with celluloid varnish. A sheet of glossy bromide paper is soaked in water for at least half an hour, then, whilst wet, squeegeed into contact with the red filter negative, and exposed, developed and fixed. After thorough washing, the image is converted into Berlin blue. Prints from the other two negatives are now taken by printing bichromated gelatine films on thin celluloid, the celluloid being in contact with the film of the negative; then developed with warm water, and stained up in the red and yellow dye baths, and then successively transferred on to the blue image, the celluloid being stripped in each case.

The Pinatype process was, I believe, demonstrated to you on Monday evening. Briefly it is as follows: Transparencies are made in the usual way on ordinary plates; these are then printed on bichromated gelatine, and the plates thus obtained stained up in the respective dyes, and gelatinized paper, after being well wetted, is squeegeed in succession to the three-colored plates, and the dye is transferred to the film of gelatine. The dyed print plates will keep, and may be repeatedly used, and only require restraining before each pull.

CARBON PROCESSES

Recently we have had commercially introduced three-color carbon tissues. Those of the Rotary Photographic Company are coated on very thin celluloid, which is placed in contact with the film of the negative, so that double transfer is avoided. The Autotype Company use the double transfer process for their color tissues and a semi-transparent temporary support.

The results obtainable by these processes are excellent, and there is nothing to learn, as they are nothing but the carbon process.

It is utterly impossible to give you any complete idea of all the methods which have been proposed and patented for obtaining transparencies and prints; to do this would compel us to undertake an all-night sitting. I have sketched in the principal processes, those which we may justly consider as in practice.

Possibly I should mention Drac's process, in which no color filters or screens are used, but the light is split up by means of prisms into definite sections of the spectrum, and these are used for making the negatives and projecting the transparencies.

Then there is an extraordinary process patented by Schinzel, which, if it can be worked, should be valuable, but I can see some difficulties in the way.

R. DUEHRKOOP TWILIGHT

Briefly, a plate is coated with three sensitive films, each of which is sensitized for a particular region of colors, and carries a color-screen in itself. After development and fixation the plate is treated with hydrogen peroxide, and the silver sets free nascent oxygen, which bleaches the dyes; then on removal of the silver the result would be a photograph in colors. There are other modifications suggested, but it looks rather visionary on paper.

Gurtner, of Berne, has patented a two-color process, in which only one exposure is required. A chlorobromide transparency plate is dyed in an aqueous solution of naphthol orange and placed film to film with a panchromatic plate, and the exposure is made through the glass of the transparency plate.

The orange-dyed transparency plate acts during exposure first as the sensitive plate for the blue rays, and secondly as a light-filter, which only permits the red, yellow and green rays to reach the panchromatic plate. On the first plate there will thus be only the blue parts of the picture represented as black; on the second plate, only the red, yellow and green parts will be black. In other words, the transparency plate gives the negative for the yellow print; the panchromatic plate, the negative for the blue print.

The prints are made as follows: From the panchromatic (blue) plate, a Berlin blue print is made by any of the well-known methods, either by toning

a transparency plate or bromide print or by printing on ferro-prussiate paper. The transparency (yellow) plate, from which the stain is quickly removed by fixing and washing, is either printed on P. O. P. or on stripping collodio-chloride paper. The prints should be fixed with ammonia without toning, and will thus acquire a muddy yellow or yellowish-red tone. The yellow transparency is now directly combined with the blue, by placing the plates film to film. If a print on paper is required, the collodion print is transferred direct to the blue print. It is obvious, without further elaboration, that this process can never give us photographs in natural colors. Even if our eyes cannot directly recognize red in a landscape, yet in the multitude of compound colors red is always present. Moreover, the inventor admits that his process will not reproduce red.

This recalls the fact that plates with two such films and, further, plates with three films specially sensitized and bearing their own color-screens, are obtainable; whether they are of any practial value I am not prepared to say.

THE JOLY PROCESS

I have reserved to the last any mention of what we may justly call the one-plate processes. The first of these was that invented by Dr. Joly, our president of last year. In this process all the color-filters were ruled in parallel lines on one glass, and this was placed in contact with a plate, and the exposure was made through this compound-line filter-screen. From the negative thus obtained a positive was made on an ordinary black-tone lantern-plate, and this bound up in contact with a screen similarly ruled, only with the correct colors, which were slightly different to those of the negative-taking screens. This process was followed or was independently contemporaneous with the McDonough process, an exactly similar one.

Sampolo and Brasseur had also a somewhat similar process, but these processes were not commercially successful. For one reason we had not satisfactory panchromatic plates, and another was that the ruling was comparatively coarse, so that when projected the lines were distinctly visible on the screen. The most important reason, to my thinking, for their non-success, lay in the fact that they were glass processes and would not give prints on paper.

"Sheets of ordinary negative glass are coated with bichromated gelatine, and exposed to the light through a negative plate of transparent and opaque parallel lines. The light passing through the transparent lines of the negative renders the gelatine insoluble in warm water, the unexposed portions washing away, thus securing upon the glass colorless gelatine lines, which, with the plates now in use, are from $\frac{1}{800}$ to $\frac{1}{1000}$ of an inch in width.

"The plate is then immersed in a color-bath of a suitable green dye, and then in subsequent baths to render the color stable, washed and dried. The appearance of the glass is a delicate green tint. It is then recoated over its entire surface with bichromated gelatine, and again exposed to the light through the opaque lined negative, taking the precaution to have the green lines protected by the opaque lines of the negative, and also one-half of the remaining unexposed surface.

"The plate is treated in a similar manner after this exposure as for the green lines, except that a red dye is now used, and the plate is rinsed and dried as before. The appearance of the plate is yellowish in tone. It is then coated a third time, again exposed, and passed into a bath of violet-blue dye. This gives the plate a neutral tint, from the recomposition of the three elementary colors, the surface being completely covered without overlapping of the edges.

"It is possible by this photographic-printing operation, with special machinery for aligning the plates and printing them automatically, to obtain remarkable uniformity. The increased fineness of the color-lines renders them invisible to the eye, and registration of the lines with a transparency would be impracticable.

"The next operation is that of coating them with a panchromatic emulsion, when they are ready to be exposed in an ordinary camera, developing and fixing in the usual manner, and obtaining a negative in colors. It is obvious that in this case the exposure must be made through the glass."

The negatives obviously show the subject in its complementary colors, and it is only necessary to print on a similar plate to obtain the colors as in nature.

THE LUMIÈRE PROCESS

Recently, too, MM. Lumière, the distinguished chemists of Lyons, have patented the use of potato starch. This is sifted so as to obtain as far as possible starch grains of approximately the same size, then they are stained with the necessary filter-colors, and mixed so that the mixture presents a uniform gray tint, proving that there is no preponderance of one color over the others. The mixture is then sifted over glass which is rendered sticky, and the grains adhere. Now it is important that there should be no overlapping of the grains, and that the interspaces of bare glass left between the grains — for they are shaped something like an elongated oyster-shell — must be filled up with an opaque material. They must also be protected by a varnish. There is also another point, and that is that starch is not transparent until imbedded in some material like Canada balsam. You will thus see that there are many difficulties to overcome, and when this multiple filter-plate is ready it has to be coated with a panchromatic emulsion.

The exposure is made, of course, through the glass, and after development and fixation the result is a negative not only as regards light and shade, but also colors; that is to say, the complementary colors are obtained, so that to obtain a positive one must either print on to a similarly prepared plate or convert the negative by one of the well-known methods into a positive direct.

Drs. Smith and Merckens, of Zurich, have patented the use of very small geometrical figures of all sorts for exactly the same purpose, and they claim that they can make a printing-paper by the same means. These patterns are impressed on a gelatine plate mechanically, and the emulsion coated on top, the exposure being made through the glass.

Some such process as this, if practicable, will, I think, solve the problem of color-photography. One plate carrying its own filters, and a similarly colored

paper whereon to get our results; but if the latter, the colored paper, is impracticable, then we have means at our disposal in existing methods of obtaining prints in colors. What we want, as I have proved by being able to make a print from a Joly negative, is colors on paper.

There is one fact that I should like to mention before leaving this particular subject. All these one-plate, mosaic or line processes were outlined by the well-known French writer, Louis Ducos du Hauron. In his work, "Les Couleurs en Photographie, Solution du Problême," published in 1869, he suggested the use of lines and dots for particular purposes, but it is not generally known that in a letter to M. Lelut, a member of the Institute of France, which was written in 1862, seven years previously, he points out that lines, dots and geometrical figures could be used. As a matter of fact, there are very few variants of three-color photography that Ducos du Hauron did not outline, although they have been the subject of recent patents.

THE FUTURE OUTLOOK

Possibly I might say a few words as to the practice of color photography. Recently it has been so simplified by the introduction commercially of satisfactory panchromatic plates, of excellent filters which absorb really very little light save that which they ought to absorb, and easy printing-materials, that it is a subject which should receive more attention than it does. What has stood in the way of its more general adoption, what still stands in the way, is the want of a camera which will enable us to take all three negatives at once, a camera which can be obtained at a reasonable price, is simple in construction and working. Given this, I am convinced that where we now have one color worker we should have a hundred. The very fact that one must make three consecutive exposures limits our work enormously; whilst in the studio this is not felt so much, it is a great drawback for all outdoor work, where trees, cattle, etc., will not keep still just to please the photographer. It is possible that I am optimistic and prejudiced, and that the pictorial worker who loves to suggest rather than delineate an object will smile at my ideas that color photography in another few years will be the rule and not the exception, and will say that it can never be a means of pictorial photography because it will not allow him to make eccentricities. My answer is that it will place a still greater power in his hands because he cannot only destroy and alter form, but color also.

The future of color photography lies in a one-plate exposure and one-printing paper, but the intermediate step is the one-exposure three-plate camera, and three printings. Color photography, as it stands at present, has been commercially proved in Berlin, in London, and in Plymouth. There is a vast field open before it, not only in portraiture, but in every subject that has color, and when we look around us it will be found that the exception in nature is monochrome, whereas in photography it is the rule.— *British Journal of Photography, reporting a paper read before the Photographic Convention, Southampton.*

A PAGE FROM A FLORAL CALENDAR

DECORATIVE POSSIBILITIES OF PHOTOGRAPHY

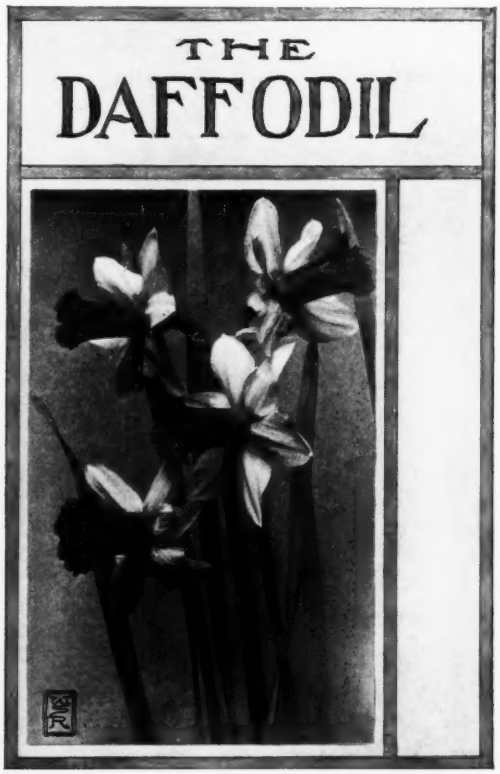
WILLIAM S. RICE

ALMOST every amateur photographer collects a stack of negatives during a year of picture-making. These are good, bad or indifferent — very often the latter. There are, however, always some successful negatives, at least in the work of more serious photographers, that can be turned to some decorative use.

While the inexperienced amateur can do something in decorative work, it is obviously better that one who aspires to produce unique or artistic decorative results with photographs should have a fair knowledge of the handling of the camera and of the printing-process.

Modern decorative art deals with all materials, used in all places; and in much of the work of designing, photography may be made useful. The subject

of decorative photography covers a broad field, as one may observe for himself by glancing through various periodicals, especially those dealing with nature or outdoor life. Not only are photographs being used as covers for magazines, but for books, booklets and catalogues as well.



A PHOTOGRAPHIC BOOK COVER-DESIGN

The modern fad of making souvenir post-cards offers unlimited opportunities for the camerist's work. Souvenir post-cards are not more difficult to print than ordinary gaslight paper. The manufacturers of the sensitized cards usually enclose a couple of masks with which one blocks out that portion of the negative not desired to be included in the picture, and the rest of the process is carried out as in ordinary printing.

The photograph is eminently adapted for calendars, and if made of twelve gray cards with an appropriate landscape or flower photograph for each, trimmed

and mounted artistically, with a panel effect, would serve to remind its owner of the giver during each month of the year.

A floral calendar which the writer made, the June page of which is shown as one of the illustrations accompanying this article, was one that afforded considerable pleasure to its owner, as each page was suggestive of memories of bygone days spent in old-fashioned gardens. Having accumulated quite a collection of flower, plant and tree studies, this collection was drawn upon for the series for the twelve months. The series was as follows:

January — Pine branch with cones.
February — Winter tree buds.
March — Daffodils.
April — Arbutus.
May — Apple-blossoms.
June — Roses.
July — Oxeye daisies.
August — Thistles.
September — Goldenrod.
October — Wild grapes.
November — Bursting milkweed pods.
December — Holly and Mistletoe.

Instead of trimming and mounting the photograph in the usual manner, an oblong panel was drawn on the print, which was then cut out with a sharp pair of scissors. The effect aimed at was to have the flowers and leaves breaking through an oblong opening. Two parallel lines drawn with pen and ink completed the decoration. The calendar slip was then glued in place on the same gray card.

Last summer, the writer made a series of juvenile photographs for a Child's Calendar to be published in a forthcoming issue of a New York publication. The subjects of the series are as follows:

January — Little girl coasting.
February — Schoolboy drawing a valentine.
March — Boy and girl flying a kite.
April — Boy planting flowers.
May — Little girl gathering blossoms.
June — The barefoot boy.
July — Children celebrating the Fourth of July.
August — Boys eating melons.
September — Teacher helping little girl to do sums.
October — Boy making a Jack-o'-lantern.
November — Child feeding turkeys.
December — Christmas morning: little girl in bed with toys.

This Child's Calendar might serve as a suggestion to others who, doubtless, have many children's photographs that could be adapted to the various months of the year. There is a form of calendar-making that will provide a

financial reward, if it be well managed. It is to make a local calendar, in three to twelve sheets, and offer it for sale at the home art or book stores. To make such a calendar, the photographer should begin a year ahead to plan and obtain suitable negatives. He should decide at the outset whether his calendar is to have three or twelve leaves. Then he may be on the lookout for the subjects that suggest the months and, possibly, the local conditions. A variety of

A SUGGESTION FOR A MENU-CARD

subjects will suggest themselves to the photographer, once he starts to "get busy" with his camera.

Calendar-pads may be bought of any stationer, but if one prefers to draw his own figures and letters, the result will be quite as pleasing.

For the making of menu-cards the photograph is adapted admirably in a variety of ways. Still-life, fruit, flowers and vegetables are, to my mind, the best suited for this line of work. The accompanying illustration of a menu-card was made in the following manner. The still-life subject of fruit was printed on Portrait Velox and then mounted on a light gray piece of thin cardboard. A scroll was drawn with a brush and India ink, and the word "MENU" let-

tered in with pen and ink. The rest of the space was lettered in the same way and this card mounted on a heavier and darker gray card. Should one desire a large quantity of these cards, perhaps the better and less expensive way would be to have the original reproduced by the half-tone process the actual size desired. Or, if one has a large camera, the completed menu may be photographed, mount and all, and as many printed as are desired, thus avoiding the task of lettering and mounting so many.

Another feature is the application of decorative photographs to book and magazine cover-designs, headings, initial letters, title-pages, etc. The photographs may often be used direct, as in the case of the daffodil design, or, again, the photograph may offer the suggestion to the artist for a drawing. The Easter cover-design served as the model for the May cover of the *Overland Monthly;* from this the writer worked up a colored drawing for the publisher idealizing the subject slightly and introducing the Bermuda Easter lilies instead of the callas. The figure of the woman in the photograph was printed on Portrait Velox, and the arched effect was obtained by cutting out a matt from black paper and placing it between the negative and the printing-paper. The photograph was mounted on gray mounts, in soft shades. The panel lines were ruled with pen and ink and the shading put in with a wash of India ink and water. A great deal depends upon the harmonious colors of the mounts; and a successful selection rests largely with the taste of the individual.

One should remember, in making a photographic design to be offered to some publisher, that boldness and simplicity of subject, as well as of line and mass, are the qualities most desirable. This applies nowhere more aptly than in flower or fruit photography. The great mistake made by beginners is in the selection and grouping of the subject. The tendency is to put too much into the composition. What could be more lovely than a bowl of June roses in the midst of their wealth of leaves and petals? But put this same bowl of roses into a photograph, and the result is confusion. Again, even a small bunch of daffodils, artistically arranged, may look overcrowded in a photograph, and will present so many scattered high lights that the result will be far from pleasing to the eye.

The best plan is to select two or three of the best blossoms, or, sometimes, even a single spray, and be content with simplicity. A couple of well-formed roses and a bud, arranged with taste, will show to the best advantage the graceful forms and delicate modelling of these beautiful flowers.

To the worker in flower-photography the decoration of Christmas and birthday cards will appeal most strongly. For the decoration of the latter, other subjects may be quite as appropriate, however, as a portrait, a scene in which the friend has had a part, a familiar nook in the home, or some favorite pet dog or cat.

To mount such prints artistically, glue them to a light gray cardboard cut an eighth of an inch larger than the print, and allow a considerable space to one side for some appropriate verse or inscription. The whole should then be

mounted on stiff mounting-board of a shade a trifle darker than the other. Sepia prints mounted on creamy, buff paper and this mounted on rough, pebbled cardboard or some soft, brownish gray would be very harmonious. The words may be drawn directly upon the first mount with brush or pen, and, when care-

A MAGAZINE COVER-DESIGN

fully done, the effect is very pleasing indeed. Two holes should be neatly punched through the card near the top and a gray or brown silk cord used to hang it up by.

Very good prints of certain kinds of flowers, leaves, grasses or ferns, that may be utilized decoratively, can be made by any one possessed of a little taste, without the use of the camera. Such pictures are known as solar prints and may be made with any of the gaslight, blue print or other sun-printing papers. The natural leaf, be it spray of fern or maple-leaf, is laid on the glass inside the

printing-frame, the paper is placed in contact and then the back is clamped in its place. A good, long exposure is given and the result is a light image of the leaf, or grass with more or less veining, against a dark background. I mention this latter method of making prints in connection with the decorative possibilities of photography, because it will, doubtless, appeal to those who do not have large cameras with which to work, and who would, without this knowledge, miss much pleasure in decorative floral photography.

THE ALUM FIXING-BATH

PHIL M. RILEY

AT this season of the year when dark-room activities are at their height, sodium hyposulphite, as a solvent of the silver salts, is probably the most used of photographic chemicals. Therefore, the composition of a fixing-bath consistent with the best results obtainable is of timely interest. Shall it be an ordinary hypo bath, a plain acid-hypo bath or an alum-hypo bath? This has been a much mooted question for some time, but at last it seems to have been proven conclusively, by the recent experiments of A. and L. Lumière and Seyewetz, that an alum-hypo bath is in every way superior to the others mentioned.

The experiments of these well-known photographic chemists bring to light a number of possibilities for hastening the process of securing a dry negative ready to print from, and are of especial interest because the investigations of these men, ever being carried out with the utmost accuracy and completeness, can be relied upon with absolute certainty.

The ordinary hypo bath, as is well known, means a solution of hypo in water, the proportion being about one part of hypo to four parts of water — a slight variation in the strength does not matter. Acid-hypo is a trifle more complex, for alums and acids, with the exception of sulphurous acid, react with hypo, the solution becomes turbid, sulphur is set free and subsequent sulphurization of the negative-image is sure to result.

Sulphurous acid does not precipitate sulphur, but, because of its unstable condition, is very unsatisfactory in actual use. For that reason acid-hypo baths are usually prepared by dissolving sodium sulphite in the hypo solution and then adding an acid such as sulphuric. The result is that as the acid attacks the sulphite much more readily than the hypo, the two react and set free sulphurous acid in the solution, the ordinary acid is destroyed and the hypo remains unchanged. The success of such a bath depends upon using each chemical in proper proportion, and any turbidity of the solution shows that this has not been done.

If alum, formosulphite or formaline is added to an acid-hypo bath, the solution acquires the property of hardening gelatine emulsions either on plates or films. Formaline, however, is objectionable because it tends in time to strip-

ping of the film and causes discoloration of the fixing-bath if any of the developer is carried into it; therefore alum is preferable. Here again sodium sulphite plays the same part as before, except that it prevents the decomposition of hypo by alum as well as by acid. Its use for this purpose was first suggested by Valenta, in 1889.

In the actual use of an alum-hypo bath, as described above, it has been found somewhat difficult, owing to the varying purity of chemicals, to maintain the proper proportions already referred to, and prevent turbidity of the bath, with its subsequent detrimental effect upon the negative-image. A. and L. Lumière and Seyewetz have, therefore, conducted a series of experiments, recently, for the purpose of compiling a more satisfactory formula, and they find that the bisulphites of aluminium and chromium in right proportions will render gelatine emulsions insoluble without precipitating sulphur; also, that equally satisfactory results may be obtained by combining an alkaline bisulphite with ordinary or chrome alum.

As to the comparative action of the two alums, the experiments mentioned show that with a 15 per cent solution of hypo the most complete insolubilization of the gelatine emulsion is effected with 0.5 per cent of chrome alum or 1.5 per cent of ordinary alum. In other words, chrome alum is far superior to ordinary alum, as only one-third of the quantity is needed and by its use the gelatine is so hardened that it will resist a temperature of 212° Fahr., while if fixed with ordinary alum the gelatine becomes softened and strips from its support at 167° Fahr. The quantity of sodium bisulphite should be about 1 or 1.5 per cent, and any considerable variation has a marked effect upon the degree of hardening.

Working on the lines of the above, Messrs. Lumière and Seyewetz advocate the following formula:

Hypo	3 ounces
Sodium bisulphite lye	100–150 minims
Chrome alum	50 grains
Water	20 ounces

Dissolve the hypo in part of the water, the bisulphite and chrome alum in the remainder and mix the two solutions. Information regarding sodium bisulphite lye and a formula for preparing it were published in the November PHOTO-ERA.

Plates which have been fixed in this bath may be freed of hypo as quickly as if the film were not hardened, and after-treatment of the negative, such as intensification and reduction, will proceed just as rapidly as if an ordinary hypo bath were used. Probably the greatest advantage gained, aside from permanence of the image, is the possibility of using hot water for subsequent washing, since the gelatine will not soften. This means a great reduction of the time required for washing the hypo out of the emulsion, and also permits of heat being used to hasten drying. An even heat must be maintained, however, as a sudden change would result in markings on the negative.

A GRADOMETER

C. WINTHROPE SOMERVILLE

EFFICIENCY and advance make for the most successful in man and his work. The greatest value of a discovery is that it leads to further discoveries. Hence we advance. Proficiency is attained and maintained, not only by keeping abreast of, but endeavoring to get ahead of, present knowledge.

The average worker has a negative from which he obtains a scale of gradation in the form of a bromide, gaslight, carbon, platinum or P. O. P. print. He may be satisfied with it or not. If he *is* satisfied with it, why should he be; if he is *not*, why should he not be — when he has no means of telling whether it is the best he can get?

One uses a certain plate for a specific purpose; is it always known that this is the best plate?

A certain brand of bromide paper will give you a certain result with a certain negative; can you tell whether a different brand will give a better or worse scale of gradation? Certainly not by examining the scattered gradation on the print. Yet the means of obtaining such information with a very great degree of accuracy is very easily secured.

A gradation meter, or gradometer, is a simple enough instrument to make for one's self, and is an invaluable possession. By its means we are enabled to ascertain with certainty the best plates and papers to use, and *also* the best manufacturers of such; which fact is good, since it will help us to keep them endeavoring to get ahead of present knowledge, and not stagnate with supreme satisfaction at what they have already produced. I do not suggest that this is the case, but it *might* be, in which case England would soon lose its present supremacy in photographic manufactures.

Take an ordinary or slow plate for the purpose. Place an illuminating-source of about the intensity of an ordinary candle (fourteens, I believe they call them) behind a diffusing-screen of tissue paper or ground glass, the whole standing on a table or bench at least five feet long. Plumbing down from the outside face of the screen, mark off four feet.

On the edge of a dark slide (plate-holder) paste a piece of paper, and mark off twelve equal dimensions, commencing at the bottom of the slide shutter where it touches the slide. For a quarter-plate instrument make the divisions three-eighths of an inch; on a half-plate, half an inch; on a whole plate, five-eighths of an inch.

Now it is required to give a series of exposures in which each one shall be twice that of the one preceding it.

There are several methods of doing this, but the most satisfactory is a combination of time and distance increases or decreases.

The exposures required are in the raitio of 1, 2, 4, 8, 16, 32 and so on. If you use a screen with a slot in it, and give a separate exposure to each division

of the plate at a fixed distance, when you get to the twelfth exposure after starting with one second, you will require to wait for a period not less than one hour and ten minutes, not including the time required in manipulating the screen. And there is, moreover, the objection of the possible and probable overlapping of the gradation strips. If, on the other hand, you combine increasing distance in accordance with the law of radiation with fixed exposures the time occupied is very much shorter.

Make your first exposure of 64 seconds at a distance of one foot by raising the shutter of the slide to the first mark; then make another of 32 seconds at the same distance, and another of 16 seconds, raising the shutter one division each time.

Now place the slide two feet from the screen, and give the exposures of 32 and 16 seconds. Move the slide again to a distance of four feet from the screen, and give the exposures of 32, 16, 8, 4, 2, 1, 1.

Graphically you will have given twelve exposures, as follows:

4 ft. 32, 16, 8, 4, 2, 1, 1 seconds.
Total, 64

2 ft. 32 = 128 at 4 ft.
16 = 64 "
Total, 192

1 ft. 64 = 1024 at 4 ft.
32 = 512 "
16 = 256 "
Total, 1792

—Light Screen.
+ Light.

Totals,	64
	192
	1792
	2048

Ratio of Exposures and Equivalent Densities		Number of Grade
1	....	1
2	....	2
4	....	3
8	....	4
16	....	5
32	....	6
64	....	7
128	....	8
256	....	9
512	....	10
1024	....	11
2048	....	12

Another method is to expose to a light projected through a lens, and stop down each time, but I have not found this so accurate. The unit of exposure may, of course, be made any time consistent with the accuracy of manipulation. *But the lightest grade should be practically bare glass.*

The advantage of raising the shutter and exposing the plate the whole time is the absence of any overlapping or spaces between the gradation strips. It is, of course, necessary to shut out the light each time the shutter is raised.

The plate must be developed to finality without more than one minim per ounce of bromide.

A good make of slow plate will easily take an exposure of 2,048 seconds to a light of the intensity described — which in my case is a flat flame burner, burning at the rate of half a foot an hour — without giving reversal at the densest end; my own experiments proving such makes as Wellington and Ward, Barnet, Imperial, Kodak, Gem, etc., to be well within the limit. A developer of a non-staining order must be used.

The above method of making the gradometer will give a series of gradation strips in which each one is twice the density of the one preceding it; if, however, it is required to make one with intermediate tones, then the screen and slot method must be employed.

The method is simple enough, but demands some skill in adjusting the slot for each exposure, so that there is no overlapping or spacing between the strips.

Supposing the gradometer to be of half-plate size, the screen must be of at least thirteen inches in length, and made either of thick paper or card. A slot half an inch wide is cut transversely in the middle of the length. The length of the slot is dependent on the printing-frame through which it has to work. A cleaned half-plate is just placed in the frame, and on this the screen is laid with the bottom edge of the slot corresponding with the edge of the opening of the frame. On the screen is laid the plate, film in contact, and lastly the back of the frame.

When the first exposure is made, the springs at the back of the frame are loosened, and the screen moved one degree up and the next exposure made, and so on.

In order to reduce the time of exposures to a minimum, advantage is taken of altering the printing-distance, as in the other method.

To prove that you *do* get double the intensity with double the exposure, it is only necessary to make exposures (preferably on a developing-paper) on two different grades, at a corresponding distance from the light, of such duration that, at the finality of development, you just get visible reduction. For example: if an exposure be made on the grade corresponding to 256 at one foot from any light, and another be made on the grade corresponding to 16 at four feet from the same light, you will get precisely the same result.

Now the uses of such an instrument are many and varied; amongst some of the most important are the following:

F. R. JACKSON TIRED

Plate Speeds.— A rough but excellent estimation of the speed of one plate in comparison with another of different quality or different make may be obtained by giving a similar exposure to each behind the gradometer, at the same distance, and developing both in the same dish to finality.

The constancy of speed in any one particular plate is also to be obtained in this way.

Density and Reversal Point.—The density-giving powers and reversal point of any plate of greater speed than that of the gradometer is to be obtained in a similar manner. But some system must be employed in these experiments.

As far as possible, a constant light and constant distance should be used, and to prevent waste of material, two or more exposures of different periods should be given by masking part of the plate tested.

The plate should be developed in the dark with a developer of normal strength of a non-staining order, and for a time ensuring finality of development. It is permissible to use a small quantity of bromide in the developer, provided the time for complete development (finality) be well exceeded.

As an Exposure Meter.—The gradometer may be used as an exposure meter for printing-purposes with considerable accuracy by comparing the density of a particular part of any negative (generally the highest light) with one of the grades, and printing by the same light. And in connection with this let it be remembered that if grade No. 7 (64) required, say, sixty-four seconds at

four feet, the time may be reduced for printing-purposes to sixteen seconds at two feet, or four seconds at one foot.

For printing-out papers, platinum or carbon, an exposure may be made through one of the lighter grades, say No. 4 (8), and the time required for visible reduction calculated for the highest light grade. Or, better still, expose a strip of paper for a definite time, and see through which grade visible reduction appears on development; then simply multiply for the deeper grade.

Example.— Expose a carbon strip for ten minutes, having already ascertained by comparison the density of the highest light. Remove the trial strip of paper from the frame, and, noting the time, start the printing of intended print. Now develop the trial slip, and see which grade has been printed through. Say there is visible reduction in No. 5, and your highest light is equal to No. 10, then $\frac{512}{16}$ x 10 minutes = 320 minutes, or 5 hours, 20 minutes.

Bromide Paper.— The different speeds, nature of shadow deposit, differences between various brands, such as "platino matt" and "ordinary," are to be found by means of the gradometer; also the gradation scale-length of this and all other papers.

Gaslight Papers.— The shortness of the gradation scale, difference in developing, intensification and toning properties, etc., between this and bromide paper, are most effectually ascertained.

Toning.— The alteration in the scale of gradation due to various toning-processes is most effectively seen by making trials on strips exposed behind the gradometer.

Intensification and Reduction.— The powers of various intensification and reduction processes can be tested with certainty, and comparisons made, thus insuring against the possible loss of a valuable negative by the first use of an unsuitable process.

Enlarging.— The gradometer is placed in the lantern, a definite short exposure given, the strip developed to finality, and the exposure calculated for the densest part of the intended negative in a similar manner to contact prints.

Generally.— The peculiarities of various developers on plates or papers; effect of printing behind colored glasses of varying shades and intensities; effect of different forms of printing-lights; effect of altering printing-distance, etc., etc., or testing the effect of any experiment, process or condition on the scale of gradation, is to be obtained perfectly satisfactorily to visual perception.

Now, it will be understood that scientifically exact measurements, such as are obtained by means of a spectra photometer, will not be possible with such an instrument, neither is it desirable, since its use is only in connection with graphic reproduction. And since the estimation of the value of tones in graphic reproduction is limited to our visual perception, it will satisfy all demands.

Two words of caution I would give. Let the light to which the plate is exposed during the construction of the instrument be such that the highest tone is nearly bare glass, and the deepest greater than any density you are likely to secure on any negative. The slowness of the plate will, of course, have a direct

bearing on this. Also, make your exposures by hand, and governed by clockwork; and in connection with this it is well to remember that if you want to give an exposure of one second, at, say, four feet, it is not possible to do so by hand, but if you remove the plate to a distance of twelve feet, an exposure of nine seconds will be the equivalent, and this is possible by hand. The law of light intensity reads: "The intensity of a light is inversely proportional as the square of its distance from the source."

It is quite necessary to varnish your gradometer.— *The Amateur Photographer, London.*

STEREOSCOPIC VIEWS WITH ANY CAMERA

DR. JOSEPH H. NOBLE

SPECIAL and expensive apparatus is not required to make stereoscopic views. An ordinary camera will answer every purpose except for taking views of moving objects. For such work a stereoscopic camera must be used.

Theoretically, to make a stereoscopic view, two photographs of the same object must be taken from points just as far apart as the human eyes — $2\frac{1}{2}$ inches. In practice, however, it is customary to use a distance of three inches in order to increase the appearance of relief by a slight exaggeration. It is possible to make these photographs in several ways.

Set up the tripod on level or nearly level ground. Make the first exposure, then move each leg of the tripod three inches directly to the right. Centre the view if necessary by turning the camera on the tripod screw and make the second exposure on another plate. Use the same stop for both plates; give both the same exposure; develop both for the same length of time and make both prints on the same kind of paper. A glossy paper is best, as the stereoscope shows the grain of a matt surface paper.

Now trim the prints to stereoscopic size, 3 inches wide by $3\frac{1}{4}$ inches high. This must be carefully done so that any object in the view is the same distance from the bottom of both prints. Mount the prints on a stereoscopic mount $3\frac{1}{2}$ x 7. The print representing the view as seen by the left eye is mounted to the left of the centre — the other to the right. After mounting one print, hold the card and the other print in the stereoscope to determine the exact position for the other print. Any portion of one print should be exactly three inches from the similar portion of the other.

For all stereoscopic work a small stop should be used — not larger than f.16. Everything in the view must be sharply defined. A good foreground adds greatly to the stereoscopic effect. In very distant views it is sometimes of advantage to make the exposures from positions wider apart than usual — for instance, from six to twelve inches — mounting the prints, however, as previously described.

THOMAS A. MORGAN THE ENTRANCE TO THE WOODS

When making indoor exposures the tripod may be dispensed with in the following manner: On a large piece of cardboard draw two lines at right angles to one side and three inches apart. Place this on a table, stepladder or a chair, and make the two exposures from the two positions marked on the card by these lines. By using a board so marked and fastened on the tripod this method may be used outdoors if desirable.

With a camera having a rising or sliding front a simpler method may be employed. Slide the lens one and one-half inches to the left of the centre and expose; then slide it one and one-half inches to the right (three inches from the first position) and make the second exposure. If the sliding front does not have a range of three inches, two inches will give fairly good results. The prints must be mounted with similar objects three inches apart as before.

A stereoscopic attachment which may be used as a substitute for the above methods may be made as follows: Procure a wooden box with a sliding lid — about 1 x 3 x 6 inches is a good size. Cut out part of one end so that the lid can slide all the way through. Then cut a small round hole the size of the tripod screw in the middle of the lid and one in the middle of the bottom of the box. With a suitable bolt put through the hole in the lid fasten the lid *upside down*

on top of the tripod. Also fasten the box on the bottom of the camera with the tripod screw, and slide the box in place on the lid, thus fixing the camera on the tripod. Slide box and camera one and one-half inches to the left of the centre and expose; then three inches to the right of that position and then expose another plate. These positions should be marked on the lid.

Small plates $3\frac{1}{2}$ x $3\frac{1}{2}$ are well adapted to stereoscopic photography, and can be readily used by means of kits or the special plate-holders now made at a reasonable price for just such purposes.

The preceding portion of this article applies to both film and plate cameras. Both exposures may, if desired, be made on one plate by making first one half and then the other. A 5 x 7 camera is best for this; a stereoscope is made to view two photographs each three inches wide, and with a 4 x 5 camera each view will be but two and one-half inches wide.

Take a black card-mount and cut it down to exactly the size of your plate-holder. By careful measurements cut out an opening of such size that when the card is laid over the plate-holder and the slide drawn, exactly half of the plate will be exposed. The cut edges of this mask should be blackened with ink or water-color.

Insert the card mask at the back of the camera in the slot intended for the plate-holder, thus bringing it directly in front of the ground glass with the opening in the card at the right. Focus the view on the exposed half of the ground glass. Place the holder between the mask and the glass (leaving the mask in); draw the slide, expose and replace the slide. Now move the camera three inches to the right. Turn the card so that the opening in the card will be at the left. Centre the view on the left half of the ground glass, insert the holder (containing the same plate); draw the slide, expose and replace the slide.

If both exposures are made exactly as described, and if similar objects in the view are pictured just three inches apart on the negative, the print can be mounted without cutting the views apart and reversing, as must be done if the stereoscopic camera is used. To give a neat appearance to the print, paste a narrow strip of black paper on the line of division on the negative.

To get pictures of the same object just three inches apart on the negative, draw two vertical pencil-lines on the ground glass, one one and one-half inches to the right of the centre and the other one and one-half inches to the left. Note some object in the first view which falls on the right-hand line. For the second view have that same object fall on the left-hand line.

If the camera takes the holder from either side, the holder may be inserted from the left for the second exposure, without changing the position of the mask. One of the images will be upside down, hence the views will have to be cut apart for mounting.

If the sliding-front method is used, it is better to turn the opening in the mask to the left for the first exposure (when the sliding front is pushed to the left), and to the right for the second. The views must be cut apart and reversed or mounting.

PHOTOGRAPHY ON THE OTHER SIDE OF THE RIO GRANDE

C. T. MASON

DURING my recent visit to Mexico City I was fortunate enough to meet two American agents whose names are well known among the photographic fraternity of the United States. These gentlemen were Mr. W. P. Wentz, of the American Aristotype Co., and Mr. Ben Eichelman, of the M. A. Seed Dry-Plate Co. It was in the private office of the American Photo-Supply Co., on Profesa Street, that the introductions took place, and the gentleman who kindly "did the honors" of the occasion was Mr. T. R. Crump, the genial, businesslike president and treasurer of the house. I had called to consult Mr. Crump on some matter pertaining to trade in Mexico, and was about to leave when the two agents entered. In his genial way Mr. Crump made me acquainted with them and the talk turned at once to photography in the sister republic.

I had already been interested in the street show-cases (*muestrarios*) of the many first-class galleries on San Francisco and Plateros Streets; but had no idea that two such travellers as Mr. Wentz and Mr. Eichelman would come all the way to Mexico City to lecture on the taking and printing of photographs. This, however, was what they were doing, and in the Mexican capital the entire photographic brotherhood was agog with interest, all eager to learn what these two agents had to tell them. Informal talks, more than lectures, they were, but the interest aroused was plainly noticeable in the various galleries I entered. That same evening of my introduction to Mr. Eichelman I had the pleasure of being entertained at dinner by him, and thus was enabled to learn much of the work being accomplished by photographers in Mexico, and, more especially, of the large trade done with the Republic by American manufacturers. It was owing to this growth in the Mexican trade that two such houses as the American Aristotype Co. and the M. A. Seed Dry-Plate Co. had judged it profitable to undertake a series of practical lectures in the various cities of the country. Just how much of our conversation I am at liberty to make public it is now difficult for me to know; but I am infringing no confidence in stating that the St. Louis firm does a very extensive business in Mexico and practically controls the entire market for plate goods. This is only to be expected where such thoroughly businesslike efforts are made for the introduction of its products, and where quality is maintained at the highest standard. In sending their demonstrators to foreign countries the work in view is practically identical with that accomplished at home. It is regarded as necessary for a thoroughly expert photographer, and one who understands the quality of the Seed plates, to go to the studios of other photographers and there show them the qualities in these plates, in such a way that they can obtain the same results. It is purely a study in lighting and chemistry, which cannot be successfully made plain in writing. These foreign travellers are also expected, of course, to report on climatic and trade conditions in all the countries they visit, but no special plate is manufactured for any trop-

ical country, as this is considered unnecessary where the Seed plates are used. A packing of water-proof paper is all that is required to protect the plates in tropical countries, and particularly where there is a humid atmosphere.

While already interested in the work done by photographers on the other side the Rio Grande, my talk with Mr. Eichelman determined me to look more closely into the matter and to devote as much of my leisure as was convenient to an investigation of the conditions under which photography is practised in Mexico. I have already referred to the show-cases which are conspicuous features along Calle San Francisco or Calle de la Profesa. It needed no stretch of the imagination to see that much of the art life of the city was centred around the studios of the various photographers, and that, even to the loiterers about the streets, these admirable specimens of portrait work were somewhat in the nature of a popular exhibition in art. At no time of the day did these *muestrarios* lack their circle of admirers and critics, and, in watching the little gatherings around them, one was enabled to see all classes of Mexico's people, from the aristocrat to the peon.

It is largely in appreciation of this popular method of advertising that the photographers have expended a considerable portion of their capital in the installation of these handsome and often costly *muestrarios*. In the majority of instances, the Mexican style of architecture assists their efforts, in advantageously placing these mural show-cases in the broad well-lighted passages leading to the *patios* or courts of the buildings. Hence, these entrances become a convenient and at the same time appropriate place for the advertising of these leading galleries. Within full view of the street and yet removed from its bustle and confusion, they offer every opportunity for a leisurely inspection of the work.

My attention was especially called to the elaborate samples of the Valleto Galleries, which are thus exhibited in handsome frames. The selection of one of these samples, at the time of my visit, was in the nature of information regarding the handsome woman who presides over the presidential mansion at Chapultepec. Mrs. Diaz is in every respect a queenly woman, and her stately grace has been admirably portrayed in the life-size figure which adorns the *patio* entrance of the Valleto Studios. There were other full-length figures, all done in the manner of a master, but this of the Señora Diaz impressed me as a veritable *chef-d'œuvre.*

It had also the result of inducing me to call on the firm whose work is thus beautifully displayed. My visit, of which there were many pleasant successors in the course of the next week or so, will always remain in my memory as one of the most delightful incidents connected with my visit to Mexico. It introduced me to three men whose personalities are deserving the highest respect, and who are photographers in the truest sense of the word. Of their personalities what impressed me most, I think, was their old-world courtesy of manner, a style — so it seemed to me — that would have harmonized admirably with the "knickerbockers" and laced coats of our grandfather's days. Their pleasing suavity of speech, combined with their courtly gestures and bearing, suggested a culture

THE VALLETO RECEPTION-PARLOR, MEXICO CITY

of mind beyond the ordinary. Contrasted with the often too abrupt style and the lack of polish so unfortunately too prevalent among our own photographers, there was much in their conduct to be cited as an example to others. They were delighted that a stranger should take so much interest in their work and wish to write an article about photography in Mexico. There was something beautiful in their lack of self-conceit, and in their naïve comments on what Brother Julio or Brother Ricardo had done. Of their patience, on which I infringed so largely, I can only say that it exceeded any experience of mine elsewhere. They not only showed me their beautiful reception-parlor, but took me over all the apartments on the upper floor, and explained the workings of each so minutely that the merest novice would have understood them. We spoke in French and in Spanish, and occasionally in English, and in all three languages they impressed me as men who knew what they were talking about. Every branch of their work seemed to hold a strong fascination for them, from the posing of their sitters to the artistic mounting of the finished portrait. Two things, however, it seemed to me, interested them most — their artificial lighting of subjects and their enlargements to full, life-size figures. The latter is a branch of their art that, I think, is unsurpassed by any of our best New York masters of the camera.

What particularly struck me in going through the various departments was the order and method that were everywhere evident. The entire upper floor of the large building in which they reside and work is devoted to these several departments. The retouching-cabinet, the printing and toning rooms, the mounting-room and their large stock department are all in keeping with the general appearance of the studio. Going through them I could not help recalling many of the dingy, space-limited departments which in the United States are too commonly the workshops of our American photographers. Here space was not at a premium, and hence no necessity existed to encroach upon the size of other departments in order to provide for the reception-parlors and the posing-room. As to the elegance (and even luxury) of the Valleto reception-salon, I can do no better than refer to the photograph which appears in these pages. When I add that nearly every object in it is of great historic value, from the magnificent table which is a relic of the early days of Spanish rule to the exquisite inlaid floor that formerly adorned the castle of Maximilian at Chapultepec, it will be seen that few, if any, of our American studios can boast as beautiful a reception-room.

But in writing of the Valleto Brothers, I must bear in mind that, although photographers of the highest class, they are also art-lovers and connoisseurs of a rare kind. The collection of pictures and art-treasures, especially of an ancient style, is a hobby in which they all three indulge, and by the cultivation of this agreeable pastime they enable themselves to produce such photographic work as is clearly the outcome of minds trained in the worship of the beautiful. It is not too much, I think, to say that however capable a photographer may become in the posing, developing and printing sides of his work, and even in the comprehensive understanding of chemical formulæ, etc., he will never be a true master in photography unless at heart he is an admirer of what is beautiful in life and art.

The Brinkman Studios, or, as I found them to be called, the Alemania Galleries, were the next to be visited and their treasures inspected. Here again I met with such courtesy as confirmed me in my opinion of the Mexican photographers as a whole. As an instance of this, I may mention that the examples of Mr. Brinkman's work, which he had kindly consented to furnish, were not prepared in time to meet my departure from Mexico City, and were forwarded by him to Vera Cruz, where, unfortunately, they arrived too late to catch me before I sailed for Havana. I had, therefore, abandoned all hopes of receiving them, and had certainly not expected any further effort on the part of even so courteous a gentleman as the proprietor of the Alemania Studios. But in this I was to be agreeably surprised. Mr. Brinkman, not knowing my New York address, enquired of Mr. Crump, the president of the American Photo-Supply Co. in Mexico City, and solicited his good offices in forwarding to me the photographs he had promised. Thus it is that I am enabled to offer to the inspection of my readers samples of Mr. Brinkman's beautiful art.

Of these it is unnecessary for me to say that they represent admirably the best class of photographic work as it is practised to-day. Mr. Brinkman is the

PORTRAIT BY BRINKMAN, MEXICO CITY

deserved possessor of many gold and silver medals, and few who are acquainted with him and with his work would deny his talents as a master of the photographic art.

Besides the Brinkman and the Valleto Studios, there were others to be visited, and in each of them I was received in the same cordial manner and every possible assistance was rendered me in procuring the information I desired. Such names as Mora, Lange, Clark and de la Plata will always be associated in my mind with the very highest class of photographers. With Mr. Clark I had only a few minutes of conversation, and that in the company of the Valleto Brothers and of Mr. Eichelman of the Seed Dry-Plate Co. The latter was demonstrating privately to the photographers the qualities of the Seed plate when

handled under certain exposures and with the suitable manipulation of the studio-screens in the Valleto Galleries; but he kindly interrupted his work to make me acquainted with the American photographer. In this way I came to hear of the Clark Studio and of the select patronage it enjoys. Situated in the pleasantest quarter of the city, it forms another of the art-attractions of the Mexican capital. Like most of these first-class studios, it is fitted with all the latest improvements for the making of photographs and providing for the comfort of its patrons.

I have elsewhere spoken of Mr. T. R. Crump, the president of the American Photo-Supply Co., and to write of photography in Mexico without making some mention of the educational work being done by this house would be to overlook one of the principal factors in the advancement of Mexican art. As sole agent for such well-known houses as the Eastman Kodak Co., the Bausch & Lomb Optical Co., the American Aristotype Co., the M. A. Seed Dry-Plate Co., the Rochester Optical Co. and the Nepera Chemical Co., not only in Mexico City, but for all the States of the Republic, Mr. Crump enjoys a position of considerable importance among the photographic fraternity in Mexico. He has built up an extensive business, with ramifications in all parts of the country, and, as a man of wealth himself, he is enabled to exert a very healthy influence on the profession as a whole. A more genial companion or a man of wider views on Mexican affairs it would, I am sure, be difficult to meet, and I shall always regard my visits to his private office as among the pleasantest incidents connected with my stay in the Mexican metropolis. He was good enough to show much interest in my proposed articles on "Photography on the Other Side of the Rio Grande," and has done me the honor to translate into Spanish a recent contribution of mine to a cotemporary journal of photography and to give it a prominent place in the October issue of his magazine, *El Fotograjo Mexicano*, the only organ devoted to the interests of the photographer in Mexico.

Among the photographs given to me in Mexico City was an exquisite one of an infant, which I should gladly reproduce as an example of how successful the "artist" has become in his faithful portrayal of child-life; but, unfortunately, in its unmounted state it has become much soiled and crushed by handling and cannot be reproduced without showing these defects. I am unable even to mention the name of the "artist," as I failed to record it at the time; but when he reads this article he will see that his visitor has not failed to speak truthfully of the very beautiful work he accomplishes.

In connection with his studio — one of the smaller galleries on Plateros Street and in close proximity to that of Mr. Lange — I am reminded of the occasion on which this photograph was given to me, and the incident may be cited as a proof of the busy life of these Mexican photographers. I had called several times to obtain the specimen of work, and each time was put off with the truthful excuse that the "artist" was too busy to make the print, but with the assurance that on my next visit it would be ready for me. My final visit was on the eve of my departure from Mexico City, and, as it happened, the pho-

PORTRAIT BY BRINKMAN, MEXICO CITY

tographer was again unusually busy in his posing-room. He found time, however, to rush out, see who had called on him, snatch up the unmounted print and, handing it to me with his left hand, while he wrung my right with the other, he repeated at lightning speed: "*Dispense-me, mucho trabajo, mucho trabajo, a dios, a dios* " ("Pardon me, lots of work, lots of work, good-by, good-by!"). A comical fellow, inclined to be easily excited, but a good photographer and — a hard worker, a man of "mucho trabajo." Lucky fellow!

But they are all lucky, these kindly, talented photographers of Mexico City. With the true instincts of the artist, they are attached to their profession and have done their share in adding to the things that are beautiful and done well. They are especially lucky in that they labor in a beautiful city, with an ideal climate for the photographer, and where the skies are always blue. No one who has met them and been privileged to inspect their art-treasures can ever forget them and the work they are doing. If in my humble way I have made them known to their brothers on this side of the Rio Grande, I have not been the recipient of their courtesy "for nothing." From the distance of many hundreds of miles, I stretch out my hand and bid them the Spaniard's "Salgan con bien!"

Quid est suavius quam rem gerere bono publico?

C. F. CLARKE

C. J. VON DUEHREN — STUDY OF THE NUDE

PHOTOGRAPHY AND THE ELECTRIC SPARK

G. H. NIEWENGLOWSKI

Among the most interesting scientific experiments made within recent years, by the aid of photography, must be classed the action upon the sensitive plate of the passage of electric sparks. In this connection it is proper to state that Boston has been a centre of experiments of this kind, in view of the remarkable and well-known Kinraide productions. On this subject a very interesting article has been published, recently, in the "Annuaire Général et International de la Photographie," by G. H. Niewenglowski. From the paper of this well-known writer on photographic subjects we have translated a portion for the benefit of our readers, many of whom, no doubt, will be glad to conduct experiments along the lines suggested by him.

WE must go back to the days of the wet-process to find the first attempts to reproduce, by photography, the path of the electric spark. Mr. Daft, a photographer of Troy, N. Y., was one of the first who obtained satisfactory results of the electric spark, as discharged from one pole to the other of a powerful Holtz machine. Dr. Stein experimented along these lines in 1883. He caused the electric spark to flash between the two poles of either an electrostatic machine or an induction-coil. He focused on the ground-glass of his camera the gap between the two poles,

so as to procure an image of equal size. He replaced the focusing-screen by the plate-holder, containing the sensitive plate, drew his slide and discharged the battery. The resulting negative showed clearly the sparks, which had been discharged during the experiment. He found, since each spark lasted only $\frac{1}{144000}$ of a second, he could discharge from six to sixty sparks a second. A little later M. Ducretet suggested a very simple arrangement for photographing the electric spark without an objective. A box A, B, C, D (Fig. 1), mounted upon an insulated support, is provided with three ebonite tubes, one each piercing the cover A, B, and two parallel sides A, D and B, C, and through which pass closely-fitting brass rods, each terminating in round knobs L, H, N. Parallel to the bottom of the box is a sort of little table P, which can be raised or lowered at will by means of a ratchet and which, through the post E, communicates

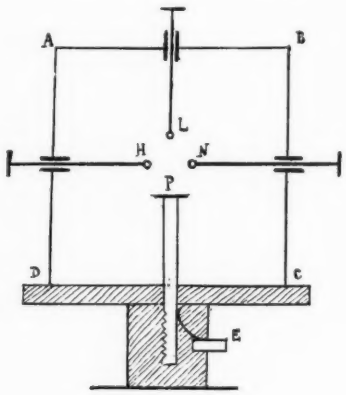


Fig 1.

with an electric source. A sensitive plate, introduced into the box, is impressed by each spark flashing between the poles H and N or between the table P and the knob L. One may substitute for the table P and the knobs L, H, N points or other bodies, at will. One may place the sensitive plate upon the table P, as has been done by M.Ducretet; viz., the dry-plate placed, film side down, on the table P, corresponds to the negative pole of an induction-coil. Above the plate was placed a thin ebonite disc, surmounted by a second disc and separated from the first by bands in a manner so as to leave an air-space between the two discs. On top of the second disc was placed a second photographic plate, film side up, and upon this a metallic disc corresponding to the table P and communicating with the positive pole of the induction-coil. In this way he obtained impressions from each pole in the form of a symmetrical figure. One may thus photograph, in natural size, the spark flashing between the two knobs H and N, communicating with the two poles of a Holtz machine, by placing upon the insulated table P a sensitive plate, emulsion side up.

The simplicity of this scheme further permits a variation of the order of the experiment, and one can thus obtain numerous interesting results. An account of the most important of these experiments may be found in Dr. Eder's work on "Instantaneous Photography." The form of sparks thus obtained varies indefinitely. A distinguished physician, Dr. Stephen Leduc, professor of physical biology of the School of Medicine at Nantes, to whom photography is indebted for numerous interesting and valuable researches, has recently pointed out several ways by which one is able to direct, at will, the course of the electric spark. One can thus, by the action of the electrical discharge upon sensitive surfaces, obtain a series of *motifs* for decoration that are extremely diversified, designs, which for beauty and variety rival those obtained with the kaleidoscope or those borrowed from the forms which nature presents to us.

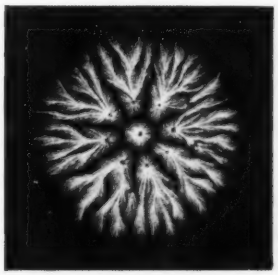


Fig. 2.

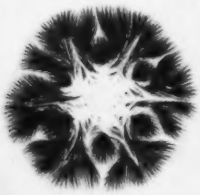


Fig. 3.

Fig. 4.

The controlled electric spark sets itself to ornament, in a most capricious and unexpected manner, the path that it is obliged to follow. For instance, it is possible to produce an infinite variety of rosettes (Figs. 2, 3 and 4) by employing one of the following methods described by Dr. Leduc, and which will enable those of our friends owning, outside of their regular photographic apparatus, an electrostatic machine or an induction-coil, to perform interesting experiments.

First, prepare a disc of cork on which place a thin sheet of lead. On a circumference stick eight ordinary pins, equidistant from each other and passing through the lead and the cork. In the dark-room the film side of a dry-plate has previously been sprinkled with a layer of powdered starch. This photographic plate is then placed upon a thin sheet of metal in communication with the outside of a Leyden jar belonging to a Wimshurst machine. The combined sheets of cork and lead are supported, stool fashion, by means of the pin-points above the sensitive surface of the dry-plate. This, the sensitive surface, is then put into communication with the outside of the other Leyden jar. It is then only necessary to discharge between the poles of the machine and to develop the dry-plate, acted upon by this spark.

Second, take a thin sheet of cardboard, which is to serve as a stencil in this experiment, and out of the centre cut, say, a six-lobed rosette or any other de-

sign. Place this cardboard stencil upon the film side of a dry-plate, and by means of a salt-shaker sprinkle some insulating-powder, such as flour, starch or sulphur. Then carefully remove the stencil, leaving upon the film side of the dry-plate the design, in powder, the rest of the plate remaining clean and smooth. One can vary the result not only by changing the patterns, but by scattering over the sensitive plate bits of tin, lead, copper, etc., cut in diverse shapes. The powders are the means of producing designs more or less refined, according to their fineness or density. The more compact powders yield the finer details, and one can obtain a greater variety of structural appearance by employing different powders differently distributed, and by employing different stencils. The photographic dry-plate, thus prepared, is placed with its glass side upon a sheet of metal in contact with one of the poles of an electrical generator. One

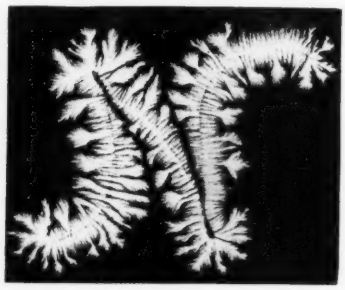


Fig. 5

can thus direct the discharge of the spark and, consequently, the results obtained, by means of the form of the sheet of metal. On the film side, in the centre of the symmetrical design formed by the powder, is placed a point in contact with the other pole of the generator. The results may be varied by changing the relative positions of the poles. In the experiment, as thus arranged, the sensitive plate represents the dielectric of a condensor, of which the metal sheet and the point form the armatures. Having made the electrical discharge, wipe the plate carefully with a dry cloth, so as to leave no trace of powder, and develop in the usual way. For a generator one can use either a Ruhmkorff coil or a static machine; the smallest of generators will suffice. One can thus obtain designs of various forms; especially one can draw with the electric spark ornamental letters or words (Fig. 5). Cut the word out of a thin sheet of lead and place the latter upon a sensitized surface; according to the presence or the absence, or the nature of the powder, or, according as one powders before or after putting the letters on the sensitized plate, one obtains an infinite number of variations. One can thus use the actinic energy of the electric spark for the reproduction of all kinds of objects — all the details, even the most unimportant, including the scratches on the surface of the original, will be reproduced with remarkable fidelity.— *Translated by Wilfred A. French, Ph.D.*

R. DUEHRKOOP
THE SPIRIT OF CHRISTMAS

EDITORIAL DEPARTMENT

"A MERRY CHRISTMAS"

THE Christmas chimes are pealing, softly pealing; joyous sounds are ringing, ever louder and clearer, ever nearer and nearer, like a sweet-toned benediction falling on the ear. Glad ringers are pulling the ropes, and in one grand swell of melody, Christmas, with its old yet ever new and marvelous mysteries, bursts triumphantly upon the world once more.

"I do not know a grander effect of music on the moral feeling," says Washington Irving, "than to hear the full choir and the pealing organ performing a Christmas anthem in a cathedral, and filling every part of the vast pile with triumphant harmony. Beautiful and right it is that gifts and good wishes should fill the air like snowflakes at Christmas-tide. And beautiful is the year in its coming and its going — most beautiful and blessed because it is always the year of our Lord!"

This beautiful word-picture of the master of English prose is the embodiment of the spirit of Christmas-time. It represents the sentiment and feeling that should actuate us all at this season of the year. The PHOTO-ERA is glad to call attention again to its beauty and timeliness, and to wish all its readers "a Merry Christmas and a Happy New Year."

THE ACADEMY

THE attitude of a certain small portion of the photographic press towards the Academy question reminds us of the story told by Elbert Hubbard of a young man who came to him with a proposition to establish a publication, the principal object of which should be to "knock" certain people against whom he had a grudge in a literary way. Among others, he cited the name of William Dean Howells as one of those against whom his efforts would be directed. "Well, what has Howells done to merit this treatment?" inquired the genial Fra. "Oh," replied the young man hesitatingly, "I really don't know; but he 's too blamed successful." We think the Academy idea is too successful for some of our esteemed cotemporaries. The editor of *Wilson's Magazine* devotes fourteen pages of the November issue to a discussion of this question. In order to size up public opinion, in the professional world, on this subject, he formulated four questions on the advisability of such an Academy and submitted them to one hundred of the most representative photographers throughout the country. "Almost all of the replies received," we quote his own words, "were favorable to the idea of some such institution; but the significant fact should not be overlooked that amongst the replies received we do not find a word from such men as Strauss, Stein, Steichen, MacDonald, Hollinger, Garo, Parkinson or Pierce." This is certainly startling, but, in our opinion, in no way militates against the idea of an Academy. They are all busy men and possibly could not

find time to formulate their opinions, for the editor of *Wilson's Magazine*, on so important a subject. The worst that could be surmised from their silence is that they were reluctant to place themselves upon record in a matter of this kind, so far-reaching in its extent. We hasten to assure the editor of *Wilson's* that, with possibly two exceptions, the PHOTO-ERA has already received assurances from all of these gentlemen favorable to the Academy idea. Far from opposing the idea, we believe they will welcome its establishment, upon right lines, with open arms. With these facts in our possession, we submit that the assumption, made by the editor of *Wilson's*, that the silence of these gentlemen indicates that they oppose the idea is entirely gratuitous and unfounded. The objection that the Academy will create class distinctions in the profession is true in a measure, since the acknowledged leaders in photography would then be in a class by themselves, separate from the second and third rate men. But this is not an altogether unmixed evil, since everybody knows there are degrees of excellence in every profession, and no one will seriously object to this except those photographers who are afraid to come to a show-down and be measured by Academic standards. The only question of serious importance raised by our esteemed cotemporary in this discussion regards the place of the amateur in the contest for Academic honors. We believe that the committee will be fully equal to wrestle successfully with this problem when it is presented. On the whole, we also believe that the Academy idea has been advanced, and is in no way harmed, by the fourteen-page discussion in the November issue of *Wilson's Magazine.*

WINTER PICTURES

WE have often wondered why photographers stick so persistently at home and forget the use of their cameras during the winter months. Occasionally we have snow scenes, after there has been a heavy fall of snow, taken in the suburban garden; but they are few in number and seldom of a quality to commend them especially to our attention. The weirdness and grandeur of the open country when buried beneath snow-drifts is seldom attempted. We make a plea for the winter photograph planned on this grander scale. Nobody knows the hills who has not seen them in winter. The difference between the summer and the winter landscape is very marked in point of grandeur and general impressiveness. There is lack of color, too, in the winter dress of Nature, but this adds to the facility of rendering such scenes correctly in the black and white tones of the photograph. Yet this very facility of rendering the winter landscape in monotone is dangerous for the photographer, as he is apt to indulge in too great extremes of black and white in his picture. The black should not be solid, but should contain a suggestion of transparency, and the whites, to escape being chalky, should favor gray tones. Ward Muir, an English photographer, tells us how moonlight snow scenes are sometimes produced. "Exquisite effects," he says, "are observable when the camera is pointed directly towards the sun. The rays falling on the rippling water and on the stretches

of snow on either side produce some very tempting lightings. Needless to say, the lens must be shaded while the plate is being exposed, to prevent a flare-spot. This straight-in-front illumination is of great use to those who yearn to produce moonlight snow scenes. All that is done is to print the picture rather darkly — there you are."

PLATINOTYPE

PLATINUM paper is probably more widely used to-day in the photographic world, for artistic effects, than any other single photographic paper. The ease with which it is manipulated, its absolute permanency and the beautiful results which it gives has endeared it to every artist photographer in the land. For this reason we regret to call the attention of our readers to the extraordinary advance in price of pure platinum throughout the world. *The Amateur Photographer* of London prints an advertisement in a recent issue, which reads as follows: "PLATINUM, 5£ 10s. per oz. now given for old platinum crucible scrap, etc. 500 oz. urgently needed during November." The editor, commenting on this, says that if a chemist has occasion to buy platinum, for laboratory use, at the present moment, he will be fortunate if he obtains it at £8 or £9 per ounce. Indeed, at the present time there is practically a platinum famine, and no definite price rules, the real difficulty being to obtain the metal. The present condition of Russia is doubtless a factor in keeping down the supply, as much of the platinum now used comes from the Ural Mountains, but the most real factor in the rise is the increasing demand for platinum for technical purposes. Since the flooding of the platinum-mines in the Transvaal, in South Africa, which occurred soon after the breaking out of the Boer War, the price has risen steadily. Recently the German Reichstag has discussed a measure prohibiting the use of platinum in photography because it was absolutely essential in medicine and electrical work, while its use in photography was not a necessity. Fortunately, the measure was not passed, though it indicates the possibilities and what might happen in the near future to cripple the platinotype process in photography.

HISTORICAL RECORD WORK

THERE is no doubt that to a large extent the photograph takes the place, to-day, of the written record of events and experiences. The photograph is more reliable than the memory, more accurate than any record or recital, however eloquent the word-picture may be. The photograph entertains and it enlightens. It suggests and it recalls, not vaguely, but with a power akin to the subject of which it is the counterfeit presentment. The camera to-day has become a fascinating source of genuine pleasure. It enlarges our horizon. As a means of fixing events of historical value or of personal interest it has unlimited uses that are truly commendable and of priceless value to the historian. Every day, as time goes on, the photograph is coming to be recognized at its true worth in establishing historical records for the future.

THE ROUND ROBIN GUILD

Conducted by Elizabeth Flint Wade. Specially designed for the amateur photographer and the beginner. Membership may be obtained by sending name and address to the PHOTO-ERA.

"Ever by day and by night, under the sun and under the stars, climbing the dusty hills and toiling along the weary plains, journeying by land or journeying by sea, coming and going so strangely, to meet and to act and react on one another, move all we restless travelers through the pilgrimage of life."

And so we travellers have moved on through the year and reached another Christmas-time, the blessed halting-place where we can rest and give and take good cheer and be girded for the New Year which comes so soon. Best of all is the thought that this is the season that brings from far the wanderers back again to the old home. No other meeting is quite like that at Christmas, for we are all children at this special holiday, and filled with Christmas love toward all.

Dickens, who might almost be called the Apostle of Christmas, so loudly did he speak its praise, says that he began by mere accident to associate the Christmas time of year with human interest, and with some inquiry into, and some care for, the lives of those by whom he found himself surrounded; and quaintly remarks that he hopes he is none the worse for it, and that no one near him or afar off is the worse for it. That is the true spirit of Christmas — to take a personal and friendly interest in those around one, and especially those to whom the world at best is a weary place and a hard place. Give out of one's abundance and good cheer to those who are our fellow-passengers — all travelling the same way, all at last to reach the same goal. Then we shall really and truly know the meaning of the Christmas watchword,

"Peace on earth, good-will to men!"

Have you ever tried making transparencies on Japanese tissue paper? The ready sensitized paper is not kept in stock, as it does not keep well, but one can order it and receive it in three or four days from the sending of the order. The paper is sensitized with platinum, and treated in the same way as a platinum print. The fiber is very tough, so there is no danger of tearing or injuring the print during the process of finishing.

A print made on Japanese tissue makes a most artistic banner lamp-screen. It has been my pleasure to view some of these, already finished and waiting for the morning of the auspicious twenty-fifth to appear as welcome Christmas remembrances. One picture is a garden scene. A young girl stands by a sun-dial in the midst of flowers. The detail in the print is very fine and shows up well against the light. The shadows are thrown into sharp relief and emphasize the motto which runs beneath the picture,

"Time passes like a shadow."

The print, as are all the others, is mounted on thin strips of wood which are covered with bands of ribbon about three quarters of an inch wide, the design being tiny pink roses, making a very appropriate border.

The second screen shows a Japanesy looking picture. There is a scraggly group of trees in the foreground, and beyond, a long vista of road and a figure walking along it away from the spectator. The effect of distance is so marked one seems to be looking for miles, almost, and finds himself wondering what lies beyond the hills outlined on the far horizon. Beneath this picture are the words,

"Beyond the hills lies Italy."

A third screen is a blue print, but a blue such as one seldom sees in a photo-

graph. The Japanese tissue seems to give a peculiar transparency to the color, as well as great brilliancy. The picture is of course a marine, and seen against the light the waves seem actually as if in motion. The boat, a yacht, is speeding on its way as if all the winds of heaven were assisting it onward. The bands at top and bottom are of gilt, and make a pretty setting to the picture.

Another is a sunset picture, with wonderful cloud effects, and the ingenious artist has backed the picture with tissue paper of the softest rose-color, bringing it down to the horizon-line only, and the clouds and sky have a faint, delicate tint of pink, which is so often seen just before the light vanishes entirely.

These pictures have been selected with great care, and are designed to suggest some characteristic of the receiver. The first, the sun-dial, is for one who fritters away the time as if the moments were not golden and once gone could never be found again. The second is for a patient worker who has been toiling a long time, whose ambitions are great, but who often finds the way long and dreary. This picture is sure to be an inspiration. The blue print is for one who loves the sea, but whose life must be spent mostly on land; while the fourth is for an old lady whose last days are being tinged with rose-color, though her early life was stormy and rough.

Half the pleasure of a gift is in knowing that the giver has studied one's tastes, or one's characteristics, and has materialized this insight in the selecting of the gift.

These prints are quite inexpensive; the brass standard on which the picture is hung costs in the neighborhood of fifty cents. It is a gift that cannot be purchased for money, and one which will not be duplicated.

One cannot go astray if in considering what gift to choose he settles on a screen made after the fashion described.

One of the fancies of the present moment is for fancy lamps and ornamental lanterns. The latter are often made of hammered and punctured brass, and, though expensive, are an attractive piece of furnishing for a dim or dusky corner of a hall, a library or a study. One of these lanterns in a square or box shape lends itself to further ornamentation by having cut in the centre of each side either a square or oval opening and fitting into it transparencies, either in black and white or in the colored slides in monotone. The colored transparencies are in monotone and are colored by the toning-process, and one may obtain innumerable variations of the four colors green, purple, brown and red. One may also use blue transparencies with excellent effect. Blue transparencies, if the subject is a water scene, are very attractive bits of photographic work, giving a bit of color while still retaining artistic value as pictures.

In cutting the opening for the transparencies pieces of the brass are left, and serve to hold the picture in place. The brass can be cut in one long sheet, hammered and punctured, and the openings cut for the transparencies. It can then be bent into shape over a square block of wood, and the free edges either soldered or else the edges punctured and put together with gilt wire woven through the holes.

An attractive variation of the lantern idea is to take four transparencies of equal size, bind the edges with ribbon and then sew the four together at the corners to make a box with neither top nor bottom. This is set over a small alcohol lamp and makes a unique ornament for the top of a bookcase.

Transparencies are so easy to make, for in the printing one is independent of sunshine, that the amateur can by taking a little thought devise many gifts along the lines suggested, and be certain that his Christmas remembrance will be gladly received and liked. Even though December wanes and Christmas day draweth nigh, there is time for the making of a number of "transparent" gifts. One evening only will be sufficient for the making of the transparencies, and mounting them is the work of spare moments caught in between more pressing duties.

An interesting gift is now on its way to the Island of Luzon, which is intended for the Christmas stocking of a young engineer spending his first Christmas away from home and from country. The "Gift" consists of a dozen 10 x 12 stout manilla envelopes, one for each month of the year, and the contents is chosen with special reference to the month in which the envelope is to be opened, for this is an "All the Year Round" present and is meant to stretch along through the months till Christmas comes again.

It would take too much space to describe — though the description would make interesting reading — the contents of all the envelopes, but one or two will serve for suggestions of what one could do in the way of making such a gift.

The July envelope contains a small American flag of silk, and a giant firecracker which, instead of one, has thirty-one fuses depending from it. A legend on the wrapper gives this advice:

"When you 've the blues
Just pull a fuse,
And gladness swift will come.
It will not wait,
But blow you straight
Away to your old home."

When a fuse is pulled it brings with it a roll of paper on which is printed a home scene, or else a picture of some member of the family, and with it a jolly message from one of the loved ones. The flag is to be pinned on the wall and the "firecracker" hung below it.

The November envelope is labelled "the Thanksgiving Number," and in it are half a dozen pictures mounted on a folder which opens out full length and can be put up on the wall, or partly folded and set on the table or desk. It contains half a dozen pictures, each one representing some one performing a task which in his home days used to be disagreeable to the young man when he was asked to perform it. Below them are the words,

"Give thanks that you don't have to do them."

One imagines that no present will give more pleasure than this which was prepared with plenty of time and forethought, but at very little expense.

WORKING ON THE GLASS SIDE OF A NEGATIVE

A negative in which the contrasts between the lights and shadows are too strong to make an artistic print may be treated from the glass side with very satisfactory results.

Make a print from the negative as a guide to the work. Take a piece of clear tracing-paper or of onion-skin paper and attach it to the glass side of the negative by pasting slightly at the edges. The tracing-paper may be used dry, but if onion-skin paper is used moisten it slightly, lay it on the glass, rubbing out any air-bubbles between the glass and paper, then paste at the edges. When dry, the paper adheres closely to the glass without wrinkles.

With a soft retouching-pencil go over the negative and work up the detail in the shadows until by transmitted light they seem dense enough to print well. Make a proof, and if the work is satisfactory then with a crayon stump blend the lines and lighten the edges of the penciling where it is needed.

Instead of using the paper, the negative may be coated with ground-glass varnish, which gives a good tooth for the pencil. The formula is as follows:

Gum-sandarac .....90 grains
Gum-mastic .....20 grains
Ether .....2 fluid ounces
Benzole .....1½ fluid ounces

Flow this over the glass side of the negative, and when dry it can be worked on in the same manner as on the tissue paper. If the work is not successful the glass may be cleaned with spirits of turpentine and the process repeated. Blend the markings by rubbing with a powder made of one part very finely powdered resin and two parts dextrine. Use a leather stump for the blending.

In landscapes, where in order to obtain a print of the clouds in the sky the landscape itself must be very much overprinted, tint the ground-glass varnish with a little Prussian blue and apply to the glass side of the negative over the landscape, softening the horizon lines with the resin powder.

Benzole is highly inflammable, and while the formula calls for a small quantity only, it is safer not to use it near a light. Keep the solution in a well-stoppered bottle to avoid evaporation.

ROUND ROBIN GUILD COMPETITIONS

First prize: Value $10.00.
Second prize: Value $5.00.
Third prize: Value $2.50.

Prizes may be chosen by the winner, and will be awarded in photographic books or magazines published or advertised by us; in enlargements, art portfolios of photogravures, mounts, or other photographic materials advertised by us; or, if preferred, we will send any article of a photographic or art nature which can be bought in Boston for the amount of the prize won.

RULES

Membership in the Round Robin Guild, with all its benefits — among which the correspondence privilege probably stands first — is free to all, and we invite every photographer to become a member. Entrance in the monthly competitions is also free to all, whether subscribers to PHOTO-ERA or not.

SUBJECTS FOR COMPETITION

November — "Harvest Scenes." Closes December 31.
December — "Snow Scenes." Closes January 31.

VIOLET-TONE SENSITIVE PAPER

For some purposes of decorative photography a violet tone is specially pleasing. French photographers have experimented until they have perfected a process for making violet-tone sensitive paper of very delicate tints, the prints resembling wash-drawings.

Rives or any good photograph paper is coated with a solution made as follows:

Hydrochlorate of ammonia .....1 ounce
Rock candy .....1 ounce
Water .....20 ounces

Heat some of the water and dissolve the rock candy in it, then strain or filter to remove all impurities. Dissolve the hydrochlorate of ammonia in the remainder of the water and mix the two liquids. Test it for acidity with a piece of blue litmus paper, and if it turns it red add a few drops of ammonia until the bath is neutral, which is shown by the paper remaining unchanged in color when dipped in it.

Turn the solution into a porcelain tray and float, one at a time, the pieces of paper to be sensitized, having previously cut them into a size a little larger than the negatives from which prints are to be made. This is the salting-solution. The sensitizing-solution is made of one ounce of nitrate of silver and eight ounces of water. When the salted paper is dry, sensitize by floating in the nitrate of silver solution and pin up to dry in a dark room.

This is a printing-out paper, and the printing should be carried as far as for Aristo prints, as the color bleaches out in the toning-process.

These prints may be toned in a combined bath or in a gold bath, and then fixed. Before placing in the toning-solution the paper is first placed in an ammonia bath, ten drops of ammonia to twenty ounces of water. The paper is just moistened in this bath, then washed in three or four changes of water, and toned to the desired color, leaving prints in the toning-bath until they have a deep purple tone in the shadows and a creamy white in the high lights.

After the prints are washed drain them well, and before they begin to dry coat them with a mixture made of equal parts of the white of egg and water. Use a soft brush and see that all parts of the print are brushed with the albumen. If prints are dried without this coating they dry a dull color and often have a muddy appearance.

Another process is to sensitize the paper after salting with a solution made of twenty-eight grains of nitrate of uranium to an ounce of water.

This is a developed paper, so one must make a print on a printing-out paper, timing the length of exposure for a good print, then expose the uranium sensitized paper the same length of time. Wash the print in warm water — about 120° F. —

then lay face up in a tray and flood with a solution made of two grains of chloride of gold to each ounce of water. When the detail is well out, and the color a rich violet, remove from the tray and wash in running water for an hour or more.

Tinted prints, or prints made on tinted paper, are suitable for the first leaf of a book of photographs, for decorating calendars, for bookmarks, etc. They are not designed for portraits, landscapes and such photographic work, but often a flower negative printed on a tinted paper is very attractive.

One always likes to vary the regular routine of any work, and a little experimenting with tinted paper will prove a pleasant pastime.

ANSWERS TO CORRESPONDENTS

WALTER G.— In purchasing a camera the size selected depends altogether on the kind of work one means to do with it. The larger the camera the more expensive the plate, which is a point to be considered. If you are simply going to do hand-camera work, hoping, as you say, to be able to do some work for the press, then the 4 x 5 camera will be quite large enough. Learn to use it mechanically, so that your mind may be directed to the subject and not to the manipulation of the camera. A 4 x 5 picture can be enlarged in case there should be a necessity for a larger picture. This you could do yourself, or the plate would be sent to the office of the paper and the enlargement made there. If you are quick of hand and eye, and not easily discouraged, you ought to be able to make a camera pay well after a few months of practice.

HAROLD K.— Platinum prints properly developed and finished are permanent. Of course carbon takes the precedence as to permanency, but platinum prints are practically permanent if the print is well bleached and then thoroughly washed to free the paper from the unused chemicals.

M. L. T.— Perhaps you are using too strong developer in the making of your bromide prints. Use the developer diluted, making the development progress more slowly, and you will get good prints even if the exposure has been a little too long. The trouble with the strong developer is that the picture comes up so quickly that it is overdeveloped before it can be taken from the solution and transferred to the hypo bath to stop the blackening. It is also a good plan to use a very little bromide of potassium, a few drops of a ten per cent solution, in the developer. This restrains the action somewhat and permits of detail being brought out more clearly. Salt also acts as a restrainer, using what can be taken up on the point of a knife to four ounces of developer.

G. L. HENRY.— Directions for making enlargements have been published in former numbers of the PHOTO-ERA. If you wish, these numbers containing the articles will be sent you. Clear your nitrate of silver solution by filtering, for sometimes the ammonia will not clear the liquid. An excess of ammonia will spoil the action of the solution.

SHELDON F.— Your solutions have oxidized by being exposed to the air. This often happens and can be prevented if you will take the precaution of pouring a little melted paraffin wax over the cork and top of the bottle. This excludes the air and the solution will keep without discoloring.

G. H.— You will find an article in PHOTO-ERA, January, 1904, on the subject about which you wish information, "Illustrating with the Camera." This goes into detail and will give you many suggestions about utilizing your pictures and also in making new ones. The magazine will be sent on receipt of price.

HELEN B.— Ortol is a fine developer for velox or bromide prints. It will not discolor nor poison the hands. In using it for the developing of negatives it imparts a reddish color to the film, which adds to the printing-qualities as does pyro, which stains the film yellow.

ARTHUR DWIGHT.— You are evidently using solutions too cold and that is the reason of your unsatisfactory negatives. Developing-solutions should never be below 65° F., and a few degrees warmer gives better results than to use a solution as low as 65° F.

BORIC ACID FIXING-BATH

According to M. Reep, a good acid bath can be made by dissolving six ounces of hypo in fifteen ounces of warm water, adding one ounce of boric acid, and making up to twenty ounces with water. Plates or paper fixed therein must not be acid or contain alum, or sulphur will be precipitated.

WHITE INK

A good white ink for putting titles on dark mounts may be made by mixing oxide of zinc or sulphite of barium in gum water to a convenient consistency for use.

DETERMINING THE NATURE OF PRINTS

It is at times difficult to distinguish some bromide prints from those on platinum. The matter can be settled, however, by trimming a tiny strip from the print and immersing it in a solution of mercuric bichloride. If the image disappears the print is a bromide, but if it remains unaltered the print is a platinum.

A SINGLE SOLUTION INTENSIFIER

A good one-solution intensifier which is simple and gives excellent results may be prepared in accordance with the following directions. Make three solutions:

A

Mercuric Chloride	60 grains
Water	1 ounce

B

Potassium Iodide	90 grains
Water	2 ounces

C

Hypo	120 grains
Water	2 ounces

Add A to B and shake. Then add C, which dissolves the red precipitate first formed, and leaves a clear solution. The plate is to be immersed until it acquires sufficient density, and is then to be well washed.

INTENSIFICATION

Photographic Scraps suggests that sulphide of soda should be used as a "blackener" after bleaching with mercuric bichloride, in preference to ammonia, on account of the probability of greater permanence. Apart from the question of permanence, ammonia usually gives a very objectionable harshness and should be avoided unless the negative originally was extremely thin.

PRINTS FROM WET NEGATIVES

It sometimes happens that emergency demands the production of a print in the shortest possible time. On such occasions it may be useful to remember that bromide prints can be taken from wet negatives. After the final washing, negative and bromide paper are inserted in clean water and brought into contact, air-bubbles being carefully squeegeed out. The exposure is then made in the usual way, and the wet paper peeled off the negative and developed. After fixing and washing, the print may be dried expeditiously by immersing for five or ten minutes in methylated spirit. For press photographs and prints not required to be permanent, fifteen minutes spraying with running water will serve as a final wash after fixing.— *Focus.*

STAINED NEGATIVES

M. Haudet recommends the following clearing-bath for negatives stained by pyro or other developers:

Alum	15 grams
Ferrous sulphate	45 "
Citric acid	15 "
Water	300 c.c.

The fixed and washed negative is soaked in this solution, a near equivalent of which was used quite in the early days of the gelatino-bromide process, and when the tint or stain is removed all that is necessary is to well wash the plate.

SILVER STAINS ON FILM

When a great many prints have been taken from unvarnished negatives, or negative or printing paper has been exposed to dampness while in the printing-frame, the negative will develop hundreds of rust-colored spots. These are silver stains and are not easily removed. One method is to immerse in the following:

Potassium iodide	1 ounce
Water	10 ounces
Iodine	10 grains

When the stains are almost invisible by transmitted light, transfer the film to a weak (one in ten) hypo bath for a few minutes. Then wash well, and, if they have not all gone, repeat. This is the best remedy we know of, but it is not infallible.

VARIED TONES ON CHLORO-BROMIDE PAPERS

Slow development, or chloro-bromide, papers like Velox have the useful property of giving a variation of tone with the variation in exposure. The scale starts with greenish-black, passing through black, warm black, brown, sepia and blood-red to yellow; the shorter the exposure and the more energetic the developer the more the tone tends towards black. The table below gives the various tones obtained with different exposures and different strengths of developer, but if the tone is not as desired the print is by no means useless.

Now, to obtain with certainty the desired tone the exact exposure required to give black tones should be found by trial and error, and then it is only necessary to alter the time of exposure and the developer according to the table.

The developers for these papers should always contain potassium bromide, the absence of which causes fog. This is possibly the cause of the non-success of some amateurs with this class of paper. The best developers are hydroquinone and edinol; the others do not enable such a variety of tones to be obtained.

For hydroquinone the following should be used:

Boiled water	1,000 c. c.
Sodium sulphite (cryst.)	125 gr.
Hydroquinone	15 gr.
Sodium carbonate (cryst.)	250 gr.
Potassium bromide	10 gr.

And for edinol:

Water	1,000 c. c.
Acetone sulphite (Bayer)	50 gr.
Edinol	10 gr.
Sodium carbonate (cryst.)	35 gr.

By adopting this method of working, identical results are obtainable every time with the greatest ease.— *Leopold Lobel, in The British Journal of Photography.*

Tone of the dry print	Exposure	Hydro. devel. to be diluted with	Edinol to be diluted with
Blue black	Normal	undiluted	8 parts water + 0.3 potass. carb.
Green black	Normal	5 parts water	9 parts water.
Olive green	Twice normal	5 " "	
Sepia	Three times normal	10 " "	9 parts water + 0.3 part conc. sol. of acetone sulphite or 0.15 dry acetone sulphite.
Brown	Four times normal	10 " "	
Red Brown	Six times normal	20 " "	
Yellow brown	Eight times normal	20 " "	
Blood red	Nine times normal	30 " "	50 parts water + dry acetone sulphite 0.5 part.
Red orange	Ten times normal	30 " "	
Yellow	Twenty times normal	40 " "	

The Filter

NOT UP TO LABEL

Professor Brander Matthews, the chairman of Mr. Carnegie's movement towards the simplification of spelling, was talking recently about exaggeration, says an exchange.

"We are too prone to exaggerate," he said. "We exaggerate in our advertisements. We exaggerate in our trademarks and labels. Is a ninety-horsepower engine really as strong as ninety horses?" Professor Matthews laughed.

"I entered, one night," he resumed, "the study of a friend of mine. He sat at his desk writing. An electrolier on the desk top gave a fair light, and beside it flamed a large wax candle.

" 'Why are you burning that candle there?' I asked.

" 'Well,' said my friend, 'I know the electric light is sixteen candles, but you 've no idea what a difference the seventeenth makes.'"— *Exchange.*

QUERY

"An answer to this problem
Is what I greatly wish:
Does fishing make men liars?
Or do only liars fish?"

The inference one must draw from this little verse is plainly a libel on the sons of Izaak Walton, for everybody who has met these genial gentlemen knows that their word would carry more weight in court than that of any bunch of business men who never fish who could be brought before the jury.

THE SAME EITHER WAY

"I don't see why they are making so much fuss about this new way of spelling," remarked Rear-Admiral Brownson after the naval review.

"No," replied Admiral Evans, thoughtfully; "it will be just as warm, probably, with one *l* as with two."

SOMEBODY'S BLUNDER

"I want to complain of the flour you sent me the other day," said Mrs. Newliwed, severely.

"What was the matter with it, ma'am?" asked the grocer.

"It was tough. My husband simply would n't eat the biscuits I made with it." — *Philadelphia Ledger.*

JUST FOR FUN

A liveryman hired an Irishman, who had just arrived from the green-tinted isle, and set him to work whitewashing a fence.

Late in the afternoon he passed Pat working away as if all the furies were after him.

"What 's the matter, Pat? You seem to be in a hurry," he said.

"Sure and I am," replied the Irishman, as he exhibited a bucket almost empty, "I 've got to finish this job before me paint runs out."— *Rochester Union Advertiser.*

A FABLE

A duck which faithfully stuck to business during the summer and laid several dozen of large fawn-colored eggs complained that she was n't appreciated. "See that hen over there," said the duck; "she has n't laid as many eggs as I have, nor as big, but she has books written about her and verses composed in her honor, while nobody is saying a word about me."

"The trouble with you is," said the wise rooster that was standing near, "that you don't tell the public what you have done. You lay an egg and waddle off without saying a word, but that sister of mine never lays one without letting every one in the neighborhood know about it. If you want to cut any ice in this community you must learn to advertise."—*Exchange.*

NOTES AND NEWS

THE PHOTO-ERA FOR JANUARY

It is well known that the monthly magazines put forth their best effort to make the December issue the star issue of the year, and the favorite monthly, whether it appeals to the general reader or to woman or child, then appears in sumptuous holiday attire. But equally noteworthy is the fact that the issue following the Christmas number represents a striking falling-off as regards outward appearances and contents. What is to account for this sudden change? Contrary to this customary anticlimax in monthly publications, the PHOTO-ERA expects to astonish its readers by following the opposite course. The January issue will, therefore, unless some unforeseen obstacle arises, contain articles of exceptional interest. As this issue will be devoted, primarily, to mountain scenery, there will be illustrations never before seen in any photographic magazine. By special arrangements with Vittorio Sella, we shall be enabled to favor the readers of PHOTO-ERA with striking views taken among elevated mountain ranges, which, for technical perfection alone, have never been equalled by any photographer, past or present. Among the exceptionally rare and beautiful views with which we expect to favor our readers are Mt. Ushba of the Caucasus range, and a majestic aspect of a group of Alpine peaks of the Pennine range, comprising he Gabelhorn, Alphubel and Rimpfischhorn. Another sublime group includes Monte Rosa and the Lyskamm. Another view, made under extraordinary difficulties, represents crevasses on Glacier Blanc, Grande Sagne and Les Ecrins, in the Alps of Dauphiny. The general view of the Maerjelen Lake, in the Swiss Oberland, is one of uncommon beauty and effectiveness.

There will also be an article of unusual interest by Louis J. Christie on the Hallett Glacier, with numerous striking photographs by the author. It may be well to add, here, that the Hallett is one of the only two glaciers within the borders of the United States.

In the astronomical world, at the present time, the lectures on "The Canals of Mars," by Professor Lowell, Director of the Flagstaff Observatory in Arizona, have created widespread interest, and it is, therefore, with rare pleasure that we are privileged to announce a series of articles on this thrilling topic. The first of these articles will form another interesting feature of the January issue. These are written by no less a world authority on astronomical subjects than John Ritchie, Jr., of Boston. There will be accompanying photographs, made under the personal direction of Professor Lowell, which will materially enhance the value and interest of these Martian articles by Mr. Ritchie. In addition to these special features, the issue will contain the usual number of instructive articles on technical photography, and the various departments will be filled with timely and helpful suggestions.

THE AMERICAN ANNUAL OF PHOTOGRAPHY

REGULAR and punctual is the appearance of "The American Annual of Photography and Photographic Times Almanac." We have at hand the issue for 1907, which is quite up to the high artistic and literary standard so well known to the photographic fraternity of this continent. Every well-informed worker must realize the difficulty encountered by an editor of a photographic publication in amassing good material. This has never seemed to be an obstacle in the issuing of "The American Annual of Photography," for the contributed articles are well chosen and certainly are up-to-date in their application to the various needs of the faithful worker. In scanning the present volume we note a number of valuable hints, foremost among which is a simple but obviously valuable suggestion on "How to Prevent Double Exposures," written by William Archibald. An equally short but useful article is by Albert Stanley Hull, on "A Simple Enlarging-Apparatus;" still another, "Chemicals for Paper *versus* Chemicals for Plates," by Milton Punnell; Russell W. Taft writes instructively on "Flashlight Portraiture." A simple dark-room light is explained by Richard Hines, Jr. The papers dealing on various subjects of photography, scientific, artistic and technical, number nearly half a hundred and are certainly worthy of being read by experts and beginners alike, for their authors are nearly all workers of high repute.

The same is true of the illustrators, among whom we recognize many familiar names, such as Jeanne Bennett, W. & G. Parish, Hana Robison, Dr. Schufeldt, Louis Fleckenstein, H. B. Conyers, William H. Zerbe, Myra Wiggins, Eleanor W. Willard, W. H. Porterfield, Mrs. W. W. Pearce, R. Duehrkoop, Fedora E. D. Brown, R. E. Weeks, Edith H. Tracy and Dr. Albert R. Benedict. The frontispiece, made on Studio Cyko paper, is a masterpiece in lighting and pose.

There is the customary collection of tables and formulæ, revised to date, and all of constant use to the painstaking worker.

The volume is sold at the usual price: paper cover, $.75; bound in cloth, $1.25, the sole sales-agent being Geo. Murphy, Inc., New York City.

PHOTOGRAMS OF THE YEAR

PHOTOGRAMS for 1906. Tennant & Ward, New York. Cloth, $1.50; paper, $1.00.

We hail with pleasure the arrival of "Photograms" for the present year. In form and general make-up this popular English annual pre-

sents the familiar features of preceding issues, and the excellence of its articles and illustrations is quite up to the lofty standard attained in 1905. Indeed, it is quite impossible to resist the temptation to allude to this sumptuous and attractive volume except in terms of sincere admiration. The editors and publishers have united their labors with sympathetic and intelligent understanding, yielding a work full of pictorial interest, as well as technical and historical value.

Although published annually, "Photograms of the Year" is not a photographic annual of the style and character of the well-known American publication, but is devoted to a review of the pictorial activity of the craft during the past twelvemonth.

The Table of Contents comprises: "Pictorial Photography in America," by Roland Rood; "Pictorial Photography in Canada," by H. Mortimer Lamb; "Notes from Australia," by A. Hill Griffiths; "The Year's Photography in Spain," by M. Mendez Leon; "Western Workers in the United States," by Fayette J. Clute; "The Work of the Year; Artistic Progress in France," by Robert Demachy; "The Two Great Exhibits (The Salon and the Royal)," by A. C. R. Carter.

This is simple fare, but wholesome and satisfying, and in quality unsurpassed. The descriptive subjects are treated sanely and in an attractive manner. Roland Rood will startle many American readers, for he upsets many pet theories regarding the artistic standing of eminent Photo-Secessionists, and among the photographic elect very properly includes several of America's foremost workers, such as J. H. Garo, H. H. Pierce, E. W. Histed, W. M. Hollinger, Pirie MacDonald, Elias Goldensky, Dudley Hoyt and J. C. Strauss. It might be well to state, at this juncture, that the abovementioned workers are full-fledged professionals and in a class by themselves. Their best productions — and these portraitists do not pretend to turn out a masterpiece every day — are in many instances beyond the artistic ability of the idolized extremist, who, despising the cumbersome but efficient apparatus of the successful professional, tries to put into tangible form a few ill-conceived ideas by means of inadequate working-tools. To be sure, there is among the vast army of professional camerists, in this and every civilized country, scarcely a handful of real artists; but these are industrious and successful workers, who, under favorable conditions of time and mood, will produce portraits of such remarkable beauty and strength as to completely outclass the best amateur work in this line.

Sticking, as he must, to his bread-winning studio, the strictly professional worker cannot compete with some of the more favored amateurs excelling in genre work and landscape. The latter class is effectively represented in "Photograms for 1906," and foremost among these delightful pictorialists, who understand the proper place of figures in the picture, stands Alexander Keighly, with his notable creation, "The Bridge," which, for keen artistic perception and broad and effective treatment, denotes creative genius of a very high order. A very similar subject, ably handled, is contributed by Robert Demachy. The figure study, "The Cape Malay Laundry," by Mrs. Caleb Keene, is a master-stroke. F. Benedict Herzog contributes a series of female groups, executed in his well-known masterly manner, and which exquisite decorative style he has made quite his own. A picture quite out of the ordinary, because it is the first artistic treatment in any form that we have ever seen, is a *motif* in the notoriously unattractive Trafalgar Square, by Alvin Langdon Coburn.

We have not the space to enumerate the artistic gems which embellish this remarkably attractive volume, but it may be sufficient to give the names of the most distinguished contributors: Alexander Keighly, Percy Lewis, A. Horsley Hinton, J. M. Whitehead, Sidney A. Pitcher, Dr. C. F. Grindrod, W. A. Stewart, C. J. von Duehren, Jas. C. Batkin, Chas. Job, Paul Pichier, W. R. Bland, J. Craig Annan, Wm. Rawlings, J. Kauffmann, Fred. H. Evans, H. Walter Barnett, Aubrey Harris, Henry Hall, C. J. King, Fred. Judge, C. F. Inston, E. O. Hoppé, Harold Holcroft, W. Smedley Ashton, C. Puyo, Bertram C. Wickison, Gino Belotti, Archibald Cochrane, Miss Bessie Stanford, Reginald Craigie, R. Duehrkoop, W. R. Bland, Emily Pitchford, Mrs. E. W. Willard, Mrs. G. A. Barton, Richard Speaight, Viscount Maitland; and, representing the American pictorialists: Alvin Langdon Coburn, F. Benedict Herzog, Eduard Steichen, Mrs. Jeanne Bennett, Lewis Fleckenstein, Alfred Stieglitz, F. H. Pratt, Wm. H. Zerbe, J. C. Strauss, Dudley Hoyt, Curtis Bell, Mrs. Gertrude Kaesebier, W. T. Greatbatch, Mrs. Hana Robison, Rudolf Eickemeyer, Thomas A. Morgan, Pirie MacDonald, Arthur Hewitt and O. V. Lange.

EXHIBITION OF MISSOURI CAMERA CLUB

THE members of the Missouri Camera Club held their annual exhibition November 12–14, at the Y. M. C. A. Building, St. Louis, Mo. The artistic success of the exhibition shows that the camera, in the hands of a skilled operator who possesses a degree of artistic perception, becomes as effective in the reproduction of nature as the pencil or brush of the painter.

Of the 390 pictures hung, all were the work of members of the club. The judges, Robert E. W. Bain, Henry Stark and F. D. Healy, expressed themselves as much impressed by the showing made by the club, declaring it was

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equal to that of any collection they had ever seen.

The prizes were awarded in the fourteen different classes as follows: Landscape — F. S. Ives first, W. M. Hand second, Charles Lindenschmit third. Animals — Charles Lindenschmit first, T. W. McClelland second; no third prize. Portraits — T. W. McClelland first; only one prize awarded. Snow scenes — T. W. McClelland first, W. H. Hand second, Charles Lindenschmit third. Still life and flowers — Charles Lindenschmit first, J. P. Maxey second, Edward Brown third. Statues and monuments — Charles Lindenschmit first, T. W. McClelland second; no third prize. Marine and water — T. W. McClelland first, Charles Lindenschmit second, W. M. Hand third. Architecture — T. W. McClelland first, J. P. Maxey second, Edward Brown third. Street scenes — T. W. McClelland first, M. Hollingshead second, Edward Brown third. Motion — T. W. McClelland first, F. S. Ives second, Charles Lindenschmit third. Child studies — T. W. McClelland first, F. S. Ives second, Edward Brown third. Interiors — T. W. McClelland first, Edward Brown second; no third prize. Miscellaneous — M. Hollingshead first, W. M. Hand second, Charles Lindenschmit third. Groups — T. W. McClelland first, M. Hollingshead second; no third prize.

R. DUEHRKOOP'S NEW STUDIO

ADMIRERS of the work of that eminent German professional photographer, R. Duehrkoop, a few excellent specimens of whose work are reproduced elsewhere in these pages, will be interested to know that Herr Duehrkoop has just opened a new studio in the leading thoroughfare of Hamburg. An unusual feature is found in the fact that, although the apartments are handsomely decorated and furnished with reference to the purpose intended, they are ordinary rooms with the usual amount of light found in a residence and no top-light whatever; time-worn accessories are conspicuous by their absence — a fact much to be commended. It is in rooms such as these that Herr Duehrkoop produces the strong and thoroughly individual examples of portraiture such as are found in this issue, and the fact causes us to wonder if many photographers in this country might not utilize their studio rooms to better advantage.

A PHOTOGRAPHIC TRIP IN THE TROPICS

THE Milton Waide Metropolitan School of Photography, Inc., 32 Union Square, New York City, is expecting to have a class leave New York the latter part of January, 1907, for the delightful tropic island of Porto Rico; return due in New York the first week in March. The class is positively limited to twelve in number, and the outing will not only be a delightful trip, giving over three weeks in this most beautiful isle of the West Indies, covering every important place of interest, including a trip of eighty-eight miles by coach over the old Spanish military road, also another trip of thirty-eight miles on the new military road from Ponce to Arecibo, but will also be a very complete and exhaustive course of personal instruction in ideal and individualized outdoor photography. The school will give the entire trip under the auspices of one of its directors and instructors, one who has spent several weeks in Porto Rico, on a previous trip, and knows the ground thoroughly. The price is $350 per person, and includes all travelling expenses to and from and while in Porto Rico; also personal instruction of the highest order in out-of-door photography, and one week's instruction at the school, after returning to New York, in ideal plate and film development and the successful manipulation of Velox and Platinotype papers. For further particulars, address the school. If interested, it is necessary to act quickly, as the number is positively limited to twelve (eleven persons and the instructor).

A UNIVERSAL PHOTOGRAPHIC EXHIBITION

A UNIVERSAL Photographic Exhibition is to take place in Dresden from May to September, 1910. It will not be confined to photographic productions (pictures of artistic and scientific character) and the diverse kinds of utensils and requisites; it is intended to afford a comprehensive view of photographic art industry to its full extent. The making of cameras, the working of optical and graphical establishments (for heliogravure, phototype, rotary reproduction), etc., will be shown in full work on the premises.

The interest of public authorities has been secured for the exhibition, and distinguished specialists as well as reputed firms in Germany and abroad have promised their support. The coöperation of photographers' associations and photographic periodicals of every country will be invited to contribute, that the great object in view, a complete representation of photography, may be successfully attained.

The management of the undertaking has been intrusted to the German Photographers' Association (located in Weimar), which is engaged with the preliminary arrangements, in union with the Dresden Society for the Promotion of Amateur Photography, and a considerable number of manufacturers and dealers.

ERRATUM

WE regret that there was an error in the article on "Kallitype Printing," by James Thompson, published in our October issue. In the formula for the developer, given on page 231, "one dram" of oxalic acid should read "one gram."

NOTES AND NEWS

THE SOCIETY OF COLOR PHOTOGRAPHERS

AT the invitation of Mr. H. J. Comley of Stroud, Gloucester, a meeting was held, on October 16, at the offices of the *British Journal of Photography*, London, England, to consider the formation of a society devoted to color photography. Those present included Edwin T. Butler, T. Bolas, E. J. Wall, Sidney L. Young, S. G. Yerbury, A. Macpherson, A. J. Newton, E. R. Grills, C. E. K. Mees, George E. Brown, Henry J. Comley, H. Snowden Ward, F. T. Hollyer, W. E. Dalden, S. G. Kimber, Charles B. Howdill and Bertram T. Hewson. On the proposition of Mr. George E. Brown, seconded by Mr. E. J. Wall, Mr. Snowden Ward was voted to the chair.

Letters and telegrams were read by H. J. Comley from many persons interested in color photography who could not be present, including such men as Dr. Grün, Dr. Hutchinson, Dr. Jumeaux, Mr. O. Pfenniger, Mr. Sanger-Shepperd and others.

Mr. H. J. Comley was elected secretary and treasurer, and a committee was also elected to draw up a circular stating the objects and methods of the society. The committee, which consisted of Messrs. E. J. Wall, Geo. E. Brown, F. T. Hollyer, A. J. Newton and the secretary, have since drawn up the following propaganda and rules, which will be placed before the next meeting of the members, on November 15.

RULES

(1) *Title.*— The society shall be called The Society of Color Photographers.

(2) *Objects.* — The objects of the society shall be to further the progress of color photography.

(3) *Membership.*— All interested in color photography are eligible to membership.

(4) *Nomination.*— Ladies and gentlemen are admitted to membership on the nomination of a member, or upon their own application. The committee shall decide any question as to eligibility.

(5) *Subscription.*— The subscription shall be 5s. per annum, payable on admission. Subsequent subscriptions shall be payable in advance on January 1 in each year. The subscriptions of members joining after October 1 shall be considered as paid up for the following year. No member shall be entitled to any of the privileges of membership if their subscriptions shall be three months in arrears.

(6) *Meetings.*— Ordinary meetings shall be held from time to time, fourteen days' notice of which shall be given by the secretary. The committee may call extraordinary meetings as they may think advisable. At the annual general meeting, which shall be held in October in each year, a balance-sheet shall be presented, and officers elected, and any other business that may require the decision of a general meeting. Special general meetings shall be called within fourteen days of the receipt by the honorable secretary of a requisition signed by five members, stating the purpose of the meeting; and no subject shall be discussed thereat but that for which the meeting was called.

(7) *Alterations of Rules.*— Alterations of the rules shall be made only at the annual general meeting or a special general meeting. The alteration proposed shall be stated in the notice convening the meeting.

(8) *Officers.*— The officers of the society shall be a committee of four members, a treasurer, and secretary. The officers shall retire annually, but shall be eligible for re-election.

(9) *Books of Account.*— Proper books of account shall be kept by the treasurer, and a book of minutes shall be kept by the honorable secretary.

(10) *Rules.*— The payment of a subscription by a member shall be taken as indicating acquiescence in these rules.

The Activities of the Society are:

(*a*) The mutual interchange of ideas and experiences in color photography by means of a circulating portfolio of specimens and MSS., which shall include questions and replies. This portfolio shall be circulated every three months, and shall not be retained by any member longer than five days.

(*b*) To obtain for members assistance by correspondence from more experienced workers, through the medium of the honorable secretary.

(*c*) To hold an annual exhibition in London, open to members and non-members, at the time of the general meeting.

(*d*) To form a permanent collection of specimens, apparatus, etc.

A most cordial invitation to join the society is extended to all who are interested in the advancement of color photography; membership is not confined to practical workers. Nomination forms may be obtained from the honorable secretary, Mr. Henry J. Comley, Surrey House, Stroud, Gloucester.

THE PRACTICAL PHOTOGRAPHER

THE lantern-slide season is now with us, a time when nature does not usually in this climate give us as many photographic opportunities as in summer. It is natural, therefore, that the photographic worker should take up printing from negatives developed during the vacation season, and making lantern-slides with which to pass the long winter evenings. We would call the attention of readers who are interested in this work to No. 11 of *The Practical Photographer*, which furnishes an excellent manual on all phases of the subject, including a thorough treatment of spotting, toning, binding, coloring, printing-in of clouds and other practical pointers. The price is 25 cents, post-paid.

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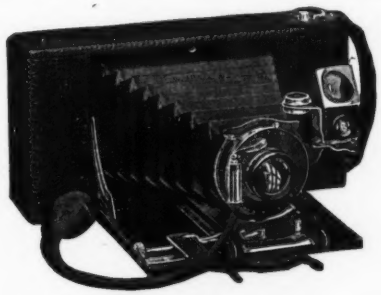

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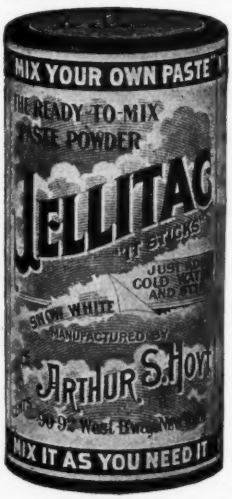

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NOTES AND NEWS

OPENING OF THE DAGUERRE MEMORIAL INSTITUTE TO THE WORLD

PROMOTING THE HIGHEST ADVANCEMENT OF PHOTOGRAPHY IN AMERICA

AT Winona Lake, Ind., one of America's greatest Chautauqua Assemblies, a monumental building has been erected and dedicated to the honor of Daguerre and to the preservation of gems and works of the masters of photography. In this salon, the only one perhaps of its kind in the world, are now assembled several thousand dollars' worth of photographic masterpieces, to which it is the pleasure to add others from time to time, that it may become of recognized authority, be far famed, and known as one of the world's greatest photographic salons. This salon is now not only bidding to be known as one of national reputation, but foreign nations are clamoring and seeking to know its meaning.

That the fame of this Institute may grow more bountiful and become one of acknowledged merit; that the general knowledge may be advanced and assist in raising the moral, the educational and professional standard to a higher plane; that the labors of the genius of merit may not be lost and in the future we may look upon them and learn their meaning, the managers of this Institute have resolved that the highest honors possible be given to the works of the master; and that he be rewarded for his labors and loves, they have decreed to award a *Diamond Medal* for the best picture exhibited in their annual meet of 1907 at Winona Lake, Ind. This medal shall be known as "The Diamond Medal of Honor" and bear an inscription of the title of the picture for which it was awarded and the name of the Institute by which it was given; and the picture receiving this honor shall be hung in the salon as a permanent exhibit, its award be inscribed thereon with date and name of maker. It shall be insured, copyrighted and protected, and all glory and honor possible shall be ascribed thereto.

In addition to the Diamond Medal, other awards will be given, among which will be a Certificate of Special Distinction, to be given to *all* pictures chosen and considered worthy to be hung on the walls of the Institute as a temporary or loan exhibit, thus exemplifying your reward in the effort to lift up the honors of photography, that all may feel and more fully realize and appreciate the good photography has achieved in the moral advancement of civilization, education and commerce.

CONDITIONS OF AWARD

No picture shall be passed upon for this honor that is not properly titled. Should the excellence of the picture chosen for this honor be judged not to equal the one chosen as best at our last annual meet, then the Trustees reserve the right to retain the medal.

Publication and use of picture shall be under control of Trustees.

Pictures shall be passed upon by two distinct sets of judges, the one selecting a number of three to five pictures, the other selecting the one. Any false claim made by winner of medal forfeits all honors, and at request of Trustees the same shall be surrendered.

Honors are open to the World, only Indiana excepted.

GEO. J. PARROT,
CHAS. W. NEISWANGER,
GEORGE GRAHAM HOLLOWAY, } *Trustees.*

OPTICAL LANTERNS. Paul N. Hasluck. Cassell and Company, New York. 40 cents.

This book of 160 pages contains practically all one needs to know about the construction and management of optical lanterns and the making of lantern-slides. The book is well written in an interesting vein and treats every phase of the subject, special attention being given to dissolving-view apparatus, illuminants, and how to conduct exhibitions. There is an illustration on nearly every page.

PHOTOGRAPHIC PROBLEMS
WITH SOLUTIONS BY PRACTICAL MEN

UNDER this heading we insert questions of a practical character relating to photography, preferably the technical side. For each suitable question which we publish, we offer twenty-five cents. We also give two dollars for every answer we print, our selection to be absolutely free of any prejudice. The answers to any problem should be in our hands within ten days after the same shall have appeared. The replies should deal concisely with the points at issue and not exceed three hundred words in length. In this connection we shall use only the initials of correspondents, whose identity will, on no account, be disclosed. Irrelevant or discursive answers will not be considered.

QUESTIONS

What is the best studio light, and why?—C. E. A.

How should a portrait-negative be retouched to preserve the likeness and character of the sitter?—E. E. P.

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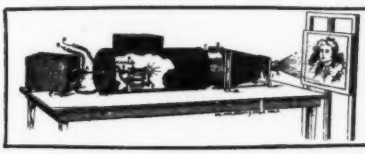

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THE PLATINOTYPE

The winner of the Goerz Cup at Niagara Falls at the recent convention was John Garo, of Boston, who thus carries off the coveted honor a second time. His winning print was a gem of tone quality and well deserved the recognition given it.—*From Photo Beacon.*

This winning print was made on our TT Sepia paper. Send for circular and sample print on our new **JAPINE** paper.

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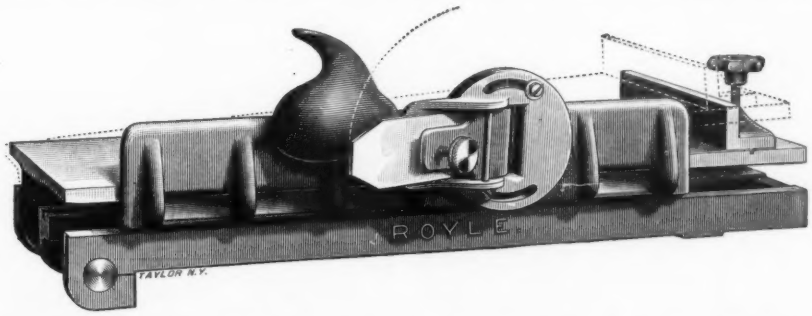

The Royle Shoot-Board is of inestimable worth to small establishments for squaring up and beveling half-tone plates. It does such work quickly and accurately. All the parts have been designed for ease in handling and rapidity in operation. It is one of those small tools always in demand in plants of limited output. Circular will be furnished on application.

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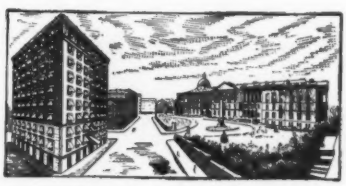

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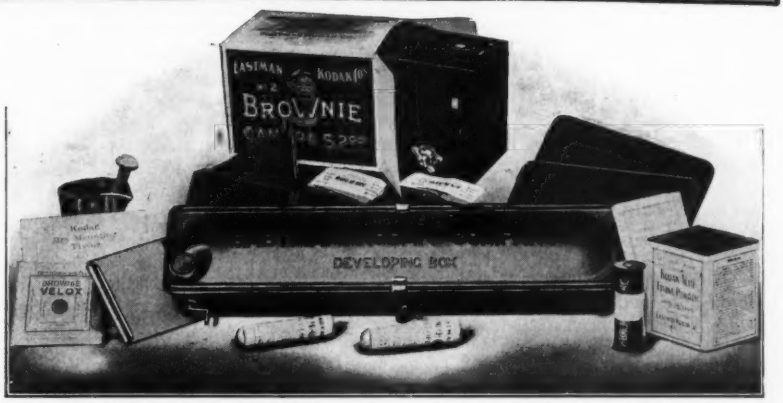

THE KODAK BOX.

Here is just the thing to present to the youngster you wish to interest in photography.

The Kodak Box contains everything for picture making the all-daylight way, including camera, film, daylight developing box, paper, chemicals, dry mounting tissue and mounts for the finished prints.

The camera is the No. 2 Brownie, known the world over as a good, dependable little instrument, and capable of first-class work. Daylight tank development has proven one of the triumphs in the Kodak way of picture making and is provided for in this outfit by the Brownie Developing Box.

The Brownie Developing Box is a simplification of the Kodak Tank Developer, made possible by the short length of the Brownie film, and consists of a handsome metal box of sufficient length to permit the unrolling of the film within it so the developer may act upon it.

The entire operation of development and fixing is conducted in full daylight in a manner similar to that employed with the Kodak Tank Developer, and the results are fully equal in quality. A special instruction book is furnished explaining in detail every operation and so simply written that success is sure, even in the hands of the absolutely inexperienced. The Kodak Box No. 2 contains:

1 No. 2 Brownie camera,	$2.00
1 Brownie Developing Box,	1.00
1 Roll No. 2 Brownie film, 6 Ex.,	.20
2 Brownie Developing powders,	.05
1 Pkg. Kodak Acid Fixing Powder,	.15
1 Four-oz. Graduate,	.10
1 Stirring Rod,	.05
1 No. 2 Brownie Printing Frame,	.15
1 Doz. 2¼ x 3¼ Brownie Velox,	.15
2 Eastman M. Q. Developing Tubes,	.10
3 Paper Developing Trays,	.30
1 Doz. 2¼ x 3¼ Duplex Mounts,	.05
1 Doz. Kodak Dry Mounting Tissue,	.05
1 Instruction Book,	.10
	$4 45

The price, $4.00, is no more than for an ordinary toy of but passing interest. The Kodak Box will afford

lasting pleasure to the recipient of any age, and, incidentally, is a happy solution of the ever perplexing holiday gift problem.

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EASY PHOTOGRAPHY.

F. Dundas Todd, editor of the "*Photo Beacon*", in a series of articles in his publication under the above caption, has been endeavoring, among other things, to disabuse the mind of the amateur photographer of certain fallacies regarding exposure and development. Having long ago settled to his own satisfaction the soundness of the theory of the time and temperature method of development, he makes use of the following actual, practical demonstration as a clincher:

"A year ago a boy of fifteen for whom I am responsible used a Brownie Kodak No. 2 during his summer vacation. He made in all about one hundred exposures before one of them was developed. Before I got hold of him he had run about two dozen through the bath with very unsatisfactory results. I pinned him down to the *time and temperature method* and *from that time on he developed all right.*

From September of last year until July of this he never touched a camera. One day he was asked to photograph a group of ladies and he proceeded to borrow my No. 4 Cartridge Kodak, loading it with a roll of six exposures. He had arranged the group on the large front porch and when I came home I was informed of what had occurred. The intention was that I could develop the roll of film, but that evening I was unable to get at the work and so left it to a more convenient season. On returning from the office the following evening I found the boy had developed the roll himself.

So far there appears to be nothing unusual in what was done, but a statement of the facts is rather interesting. To avoid much measuring and weighing, the boy had been in the habit of using a rodinal developer of a certain strength for a particular time at a fixed temperature. It so happened, however, that he was short of this developer and on rummaging through my dark-room landed upon a lot of Eastman's developing powders. He immediately dissolved one of them according to instructions, brought the solution to a temperature of 65 degrees and went ahead. About two years before I had told him that the particular pyro formula I was in the habit of using took six minutes to develop and he thought that time ought to be good enough and he acted on the strength of this opinion. The negatives proved to be very good. Being somewhat curious, I asked him what stop he used and he informed me that he really did not know as he had forgotten all about the stop. An examination of the instrument showed the aperture to be F. 16. Then I inquired as to the time. He smiled very blandly and informed me that he took care to give sufficient variety by starting at one second and giving 2, 4, 6, 8 and 10 to the other five. What surprised me was the *remarkable uniformity of the results.* The negative ultimately selected to print from was chosen not for its technical excellence but because it was the one in which the members of the group appeared to look at their best.

The important feature of this experiment I want to impress upon my readers is the fact that *sufficient* exposure was given and that care was given to the *strength* of the developing bath, to its *temperature* and to the *time* the films were permitted to remain in it. These are the three important factors in developing and the boy had had them hammered into his head so frequently that he was very careful over this part of the work even if he had been a trifle careless about the factors that concerned exposure.

A great many people ask me why

it is that increased exposure within the limits of the latitude of the plate does not flatten out the gradations in the picture. The mechanics are now understood since it has been possible to make exact measurements in a scientific way, and *the result of prolonged over-exposure would appear to be only an even deposit of fog on the surface of the sensitive film, which merely buries the first impressed image, and whose effect practically is simply to prolong the time of printing.* If an over-exposed and fully developed negative be reduced the reducing bath will *first* of all attack this *surface* deposit and once it is got rid of we find practically that we have got a negative that is equal to one that was correctly exposed and properly developed."

Back up the sound theory of the time and temperature method of development with the remarkable uniformity and unequalled latitude of the Eastman N. C. film, and add to this all the convenience of the Kodak Tank Developer, and you have the ideal method of producing the highest percentage of good results. The experience is in the Tank.

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Any owner of a Folding Pocket Kodak, or in fact, almost any model Kodak, has practically a complete outfit for making bromide enlargements of any size. We have just issued a new book "Bromide Enlarging with a Kodak", which explains fully how the Kodak may, by the simplest means, be converted into a practical enlarging apparatus.

In addition, the book contains explicit directions for every process of enlarging down to mounting the finished print.

The book is yours for the asking, at your dealer's or by mail.

NO CHANCE.

Have you ever stopped to consider how pitifully small the happy-go-lucky man's chances for error are with a pocket Kodak? From start to finish every time he wants to make a mistake, he is brought up with a round turn.

Take off the back of the Kodak to insert the film spool, can't put the back on again upside down or wrong end to—there is the word "Top" stamped on the back, staring him in the face.

Try to put the spool in upside down, "Top" on the spool end again points the way.

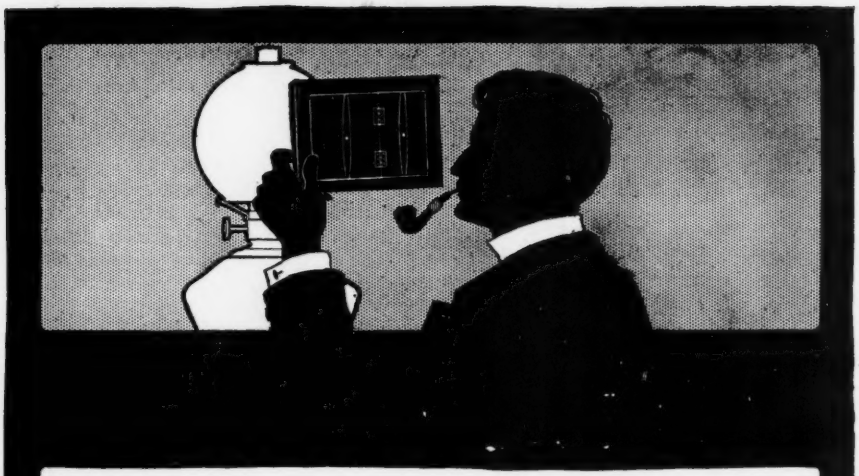
Let him start to wind off the film with the firm determination to run past No. 1—hold on, go slow, a warning hand appears at the little red window and in spite of himself, he turns slowly until No. 1 appears.

Then there is the finder right where he has *got* to look into it—absolutely no excuse for cutting off the head or feet of his subject.

Correct focus? Ah, there is where he has his opportunity—just draw out the front and take chances: But, no, here is a nice little graduated scale with various distances marked on it—looks too business-like to pass by and unconsciously he estimates the distance and adjusts the bellows accordingly.

Next day he is out for street scenes and general views—at last here *is* a chance to mix things up, but way down on the right hand side of the Kodak front is a little device with a catch for stopping the front in correct focus for various distances — yes twenty-five feet is about right, so he sets the Automatic Focusing Lock and the "Fixed focus fixer" as an enthusiast so aptly termed it, thwarts his final endeavor to go wrong.

The film with the speed of a Seed 27—Eastman N. C.



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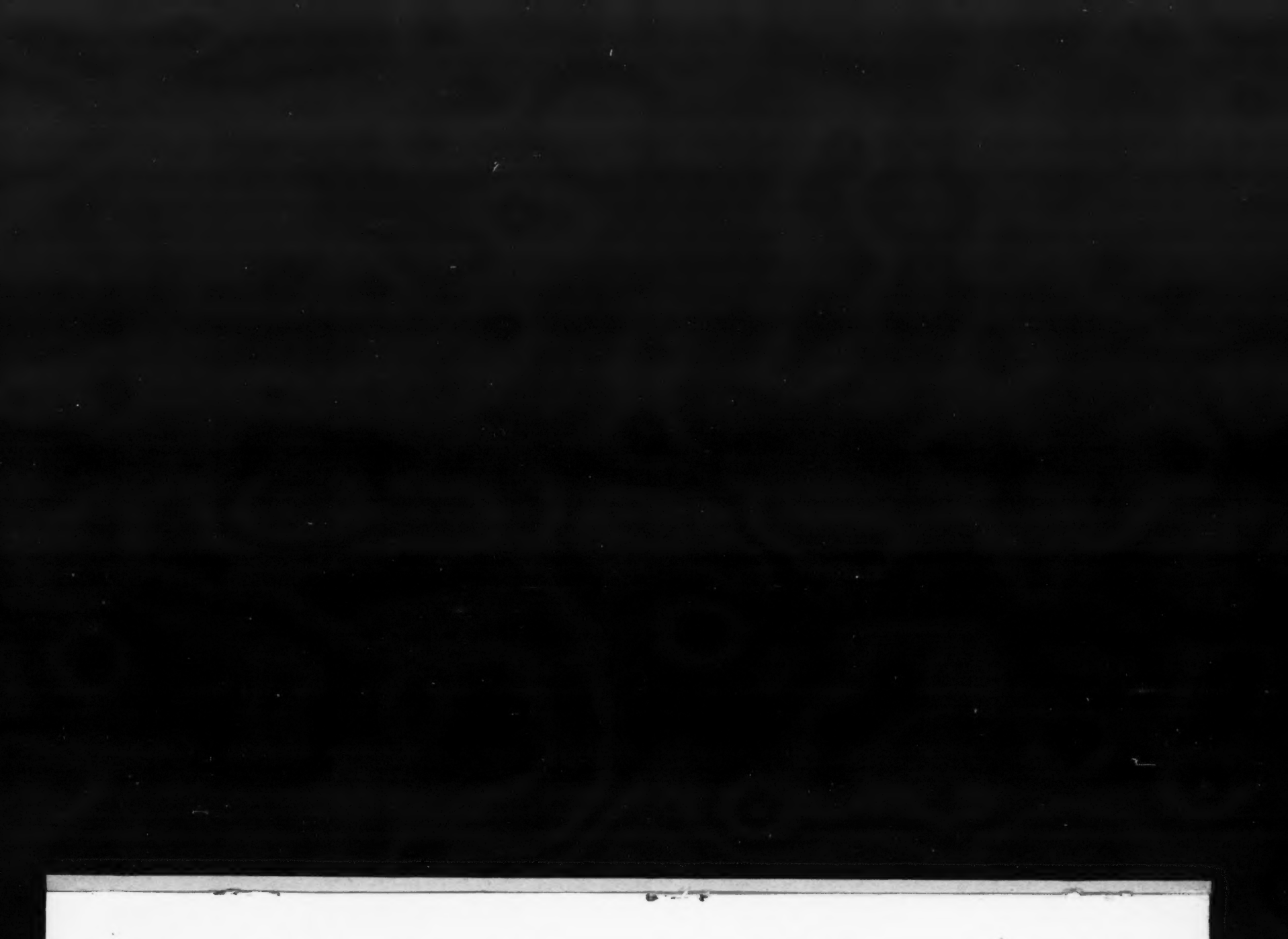
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